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Diplomová práce



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The Influence of Social Media and Hyperconnectivity on Student Academic Productivity and Performance

Vliv sociálních médií a hyperkonektivity na akademickou produktivitu a
výkonnost studentů

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Vedoucí práce: Mgr. Josef Šlerka, Ph.D.

Poděkování:

Ráda bych touto cestou poděkovala Mgr. Josefu Šlerkovi, Ph.D. za vedení mé diplomové práce a její konzultování, dále za nekonečnou trpělivost a odbornou pomoc při výběru tématu a jeho zpracovávání. Velký dík také patří mé rodině a přátelům, zejména MSc. Barboře Stárkové, za nekončící motivaci a konzultaci statistické části práce.

Prohlášení:

Prohlašuji, že jsem diplomovou práci vypracovala samostatně, že jsem řádně citovala všechny použité prameny a literaturu a že práce nebyla využita v rámci jiného vysokoškolského studia či k získání jiného nebo stejného titulu.

V Praze, dne 3. srpna 2021

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Klíčová slova (česky)

sociální média, sociální sítě, Facebook, produktivita, student, hyperkonektivita, akademická produktivita, prokrastinace, media multitasking

Klíčová slova (anglicky):

social media, social networks, Facebook, productivity, student, hyperconnectivity, academic productivity, procrastination, media multitasking

Abstrakt (česky)

Cílem této práce je zanalyzovat, jakým způsobem ovlivňuje neustálá konektivita, aktivita na sociálních sítích a přítomnost online, produktivitu a výkon vysokoškolských studentů, zejména pak jejich akademické výsledky. Data, která byla v rámci rozboru a mé praktické části použita, byla sesbírána z dotazníku mnou přeloženým, jehož zdrojem byla studie vyvořena v roce 2016 (Lau, 2016).

Cílovou skupinou výzkumu byli studenti vysokoškolských oborů nezávisle na typu či stupni studia, kteří aktivně používají sociální média, často právě i ke komunikaci týkající se jejich akademické přípravy. Předmětem výzkumu je zjistit, jakým způsobem sociální media studenty při jejich akademické činnosti ovlivňují, a jestli lze poznatky, které byly představeny ve zdrojové studii, aplikovat také na dataset sesbíraný v rámci této diplomové práce. Finálním výsledkem práce by měly být především nové poznatky z tohoto odvětví v rámci českého vysokoškolského prostředí a případná doporučení.

Abstract (in English):

The aim of this thesis is to analyze, how exactly the constant connectivity, social media activity, and online presence influences productivity and performance of university students, presumably also their grades. The data used in the analysis and my practical part were collected from a questionnaire translated by me, the source of which was a study created in 2016 (Lau, 2016).

The target group of the research were students at Czech universities, regardless of the type or level of study, who actively use social media, often for communication related to their academic preparations. The subject of the research is to find out how social media influences students in their academic activities, and whether the findings that were presented in the source study can also be applied to the dataset collected for this thesis. The final result of the thesis should be mainly new knowledge from this field within the Czech university environment and possible recommendations.

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INTRODUCTION

In today's globalized society, social media plays a grand role in the way we communicate with each other as individuals, as well as groups. The gigantic leaps, that the technologies have taken in the past decades, have forced us to re-think and change how we interact, learn, and share knowledge, but also information in general. What was impossible a mere decade ago in terms of "instant knowledge", now seems like a normal day-to-day ritual. The biggest force of today's internet – social media, is supplying us with news from our social circle, our colleagues, classmates but also with standard news and marketing. The biggest supplier of information today is by far, Facebook, with more than 2,8 billion users a month and an average of 1,8 billion active users on a daily basis in 2021 (Facebook Investor Relations, 2021). This number makes it currently still the most used social media platform in the world. It is also 3rd most actively searched platform ever, right behind Google and YouTube.

In regard to the events of these past two years, with the world being taken aback by the COVID-19 pandemic, the adoption of social media and the Internet, in general, has risen, as many people had to connect for the first time to overcome the challenges of separation and isolation. Many of the existing users have adopted new tools and sites not used before. As a result, the overall activity on social media has soared. According to the Social Media Report (2021), the number of users has risen by 13% since 2019, as almost half a billion new users registered to social media sites, taking the overall statistics to around 4,2 billion active users in early 2021.

According to Statista (2021), the approximate number of Czech Facebook users is around 5,6 million, with the most active group being the ages of 18-34, which are making up 45,9 % of Czech users. Social media is a perfect tool to organize meetings, parties, or any other social gatherings. It is the easiest way to connect with your peers, friends, or acquaintances or simply to meet new people. Social media has, in recent years, also taken over as a platform for voicing opinions, finding like-minded people in terms of hobbies, business, and also political opinions. It has now more than ever taken over a primary role as a communication tool for us – we have grown comfortable with replacing face-to-face communication with the one on the web. And without it, many people would lose not only a way to communicate but also to perhaps their way of living.

There are countless research papers that are delving into the realms of the influence of social media on business, economy, psychology, and also marketing. But only a limited amount has been available to read on the influence of social media on students and their academic work in recent years. Moreover, another relevant factor is that most of the students of today's bachelor and master programs are also early adopters of the newest social media trends, mainly thanks to their upbringing and all-around comfort with the new technologies and easy access to them (Vorderer et al., 2016). As most of the similar research papers were conducted in Asia or the Middle East at the beginning of the last decade, I have found it interesting to extend this research topic to the Czech Republic in 2021.

My thesis is therefore attempting to explain the phenomenon of social media's influence on the productivity and academic performance of Czech university students, mainly through the analysis of their behavior online and the examination of the role of social media in their academic pursuits. It also examines other factors that are present, like social media multitasking, which according to Lau (2016) can also influence the overall findings. The thesis is divided into three main chapters. The first one is mainly focused on the literature review, explanation of the basic terms, and their correlation to the topic. It begins with explaining the term "social media" and its history, then follows with the explanation of the different types of social media and their usage, history, and development. The second part is related directly to the links between social media and academia. This chapter includes an overview of how social media come into play within the academic environment and is focused on their use for academic and non-academical purposes and the overall tendency of students to procrastinate. As this phenomenon is one of the major disadvantages when using social media in general, the term itself needed to be explained further. Separate chapters are then focused on the topics of both social media multitasking and academic performance.

The last part is focused solely on the research itself, mapping out the initial source research study presented by Lau (2016), his overall processing of the analysis, findings, limitations, and conclusions, etc.

Afterward, the whole research design is presented. Sole sub-chapters are explaining the methodology (data collection, processes, coding, and overall statistics), then the results of the study are presented and discussed.

1 SOCIAL MEDIA: THE BEHEMOTH OF TODAY'S INTERNET

1.1 What are social media?

The term “social media” has been firstly used in 1994, Tokyo. There, some of the early adopters of new technologies browsing the Internet described a then-popular online media environment called Matisse (Aichner et al., 2021). It was one of the first platforms that was developed on the Web in the early days of the commercial Internet. Since then, the number of social media platforms as we know them, as well as users, has skyrocketed, as previously stated in the introduction. This quick adoption and major usage have made social media a metaphorical behemoth of the Internet.

Aichner et al. (2021) explain that social media has proven to be used as a major umbrella term for a variety of different online platforms on the web. He states that social media can extend from „blogs, business networks, collaborative projects, enterprise social networks (SN), forums, microblogs, photo sharing, products review, social bookmarking, social gaming, SN, video sharing, and virtual worlds.“

However, there have been other, much older projects, that we can now categorize under the term „social media“ even though they weren't called by this precise name in the historical development.

A similar definition has been described by Kaplan and Haenlein (2010), who define social media as „Internet-based applications, that allow the creation and exchange of content which is user-generated.“

According to them, one of the first “prototypes” of social media has seen the light of day in 1979, at Duke University, where Tom Truscott and Jim Ellis created a completely new system called “*Usenet*”. Usenet was a worldwide discussion board and system, where anybody who had access to the Internet could post public messages. It became a precursor for today's bulletin boards, news feeds as well as forums.

Another example of the development of social media is “*Open Diary*” from 1998. An early social network of sorts, that has been founded by Susan and Bruce Abelson, where online diary writers could be brought into one community and share their daily writing. Around the same time, the term “*weblog*” was first used by Jorn Barger and later edited by Peter Merholz who turned the term “*weblog*” into “*we blog*” and therefore

coining the term “*to blog*” and “*blogging*” (Kaplan & Haenlein, 2010). Afterward, with ever-growing communities and such affordances as faster Internet speed, the first social network sites have become to emerge. With blogging and browsing the web being popular, the first-ever proper “social network” called SixDegrees.com has been created in 1997. It was the first online platform that enabled the user to create a profile, list their friends, and by 1998 surf the actual “friend lists”. SixDegrees.com was the first site, that combined different features found in other platforms and promoted itself as a tool to help its users with connecting and sending messages to each other (Boyd & Ellison, 2007). Other sites swiftly followed and paved the way for the new type of social networks like Ryze and CyWorld (2001), Friendster (2002), MySpace (2003), and others.

This new trend at the turn of the century, that has transformed the user from consumer to participant, is often called “the second stage of Internet development” - a “Web 2.0”. The concept of Web 2.0 and also UGC (user-generated content) has been first described in 2004 to explain a new way of how software engineers and users started to use the World Wide Web.

On this development, Obar and Wildman (2015) state the following:

“Before Web 2.0 applications became popular, the World Wide Web was primarily a medium for consumption. If you used the Internet in the late 1990s, you likely spent the majority of your time on the web reading what other individuals had written and consuming audio and video clips that were often present in commercial media. Web 2.0 applications changed the way we interact with the online world and the other users we connect with through it because Web 2.0 applications have made the Internet more interactive.”

In this “Web 2.0” is characterized by Obar and Wildman (2015) the main shift was not drastically technological, it was rather ideological – the user has become a “*prosumer*”, a combination of consumer and a producer and the role of *user-generated content* (UGC) has become very significant. It meant that from now on content on the Web is no longer created solely by individuals, but instead is continuously modified by all users. These new developments, dynamic sharing, and interaction have made it possible for different types of social media to emerge in the following years.

Among those, the most prominent apart from social networks are bookmarking sites, microblogging sites, media sharing sites, social news sites, blogs, forums, and

collaborative sites. The following chapter will provide a more in-depth description of each of the types of social media.

1.2 Types of social media and how they work

There are many ways to differentiate between several types of social media. One of the most typical, however, is to divide them by their primary function.

I have decided to use and modify a list of social media types by Grahl (2012) which can be seen in the full description in the below table.

Social network sites (SNS)	Platforms that allow you to create a profile, in order to connect with other people with similar interests, backgrounds, your real-life friends, or family. The profile standardly consists of the user’s personal information and photo. Usually, the platform lets you interact with others in various ways – liking, messaging, etc. A typical example is a site like Facebook or LinkedIn .
Bookmarking sites	Platforms that allow the user to save, organize and manage links or other media from various websites and resources. Most of these types of platforms let save your “tags” and divide them for later use. A typical example is StumbleUpon or Pinterest .
Microblogging sites	Platforms that are a combination of SNS and blogs. Usually, the messages users can share are limited in size and others usually have to “subscribe” to see the shared information in real-time. The typical front runner for microblogging is Twitter .
Media sharing sites	Any type of platform that allows its users to upload and share content like photos and videos. Most of these services have also implemented SNS features like profiles or visible comments, likes, etc. The prime example is YouTube or Flickr .
Social news sites	Platforms that allow the users to post various news or links to outside articles or media and then allow the users to “vote” up and down on the items. The voting feature is one of the core aspects of these types of sites and as certain items get more votes, the more visible they are to the community. Examples of these types of platforms are Digg or Reddit .
Blogs and forums	Blogs can be described as a type of online diary. They allow users to compile article-like posts and enable other users to comment on the blog posts and share them. Online forums allow usually registered members to hold conversations with a “post” like messages to a certain topic. They

	initially evolved from bulletin boards. An example of a blog platform is Blogger , forums can be found anywhere on the Web.
Collaborative sites	Open collaborative platforms are focused mainly on the gathering of information, data, and media for the purposes of explanation and knowledge sharing. They usually require a large pool of volunteer contributors who add in the necessary information. A typical example of a collaborative platform is Wikipedia or Wikisofia and other wikis.

Table 1: Forms of social media adapted from Grahl (2012) and revised

All of the above have one thing in common – all platforms are only important as long as the users consider it so. In Web 2.0, user-generated content is the fuel that keeps certain social media alive and relevant. The currency of all social media platforms is user data. The more data the users share, the more relevant it becomes.

All the information shared and put onto Facebook profiles, videos uploaded to YouTube, photos shared and liked on Instagram, tweets posted or retweeted on Twitter, the blog entries, and the comments under them, the upvotes on Reddit or another term edited on Wikipedia. An endless stream of user-generated actions that provide social media with relevant information. Without these actions and decisions, the platforms lose their relevance and join others in the “internet graveyard”, where many sites like MySpace, Google+, and others have ended upon. (Obar & Wildman, 2015).

But how exactly do social media work, and what can we do with them? They can be used to communicate, interact with other users whether they are your friends, acquaintances, or complete strangers. Social media can serve as a way to share or receive guidance and knowledge, as well as unwanted attention or opinions.

Boyd and Ellison (2007) state, that the backbone of social media service is the *user profile* with varying degrees and types of information needed and requested by each service. They however often include some sort of option of creating a username, filling our necessary contact info, and/or adding a picture. The reason for this is to enable the users to form connections through the profiles. Without these identifiers, finding and connecting with others online would be likely a challenge. Moreover, most of the tools like liking, upvoting, sharing, comparing scores, or commenting, would not be possible without such things as a profile and user identification.

The easiest way to demonstrate the necessity for a “profile” function in social media is several types of social media apps that have claimed to be “anonymous”. One of them was an American app called YikYak developed on the basis of Snapchat. It has been relatively popular among American students in 2014. The app was marketed as being all together anonymous, without requiring individuals to provide their real name, photo, or anything else upon sign up. Instead, upon agreeing with the Privacy Policy, the app has created an “anonymous” singular profile in its database, which has in return tracked the mobile device onto which it was installed, its location data as well as all user input. Therefore, even services like this need a backbone with a “profile” in place, to deliver the functionalities that the users are looking for - messages, likes, etc. (Obar & Wildman, 2015).

As not all types of social media are equally relevant to the topic of this thesis, it is necessary to pinpoint the ones that are usually used the most, when it comes to academic work or preparation. The core social media platforms used for academic purposes are social networks and microblogs, media sharing sites as well as collaborative platforms (Lau, 2016). Therefore, the following subchapters will explain these deeper.

1.2.1 Social network sites and microblogs

Over the last decade, social media has been many times wrongly identified as solely social network sites. This has probably happened due to the fast-growing importance and the popularity of the SNS in the lives of modern humans.

Social networks can be defined in many ways, however, one of the first and earliest definitions comes from a sociological study by J.A. Barnes in 1954. His research was focused on social links/networks between the fisherman in Norway and concluded with the definition of society as a set of points, some of which are interlinked – just like the connections of fishermen’s webs. These points then connect common interests, contacts, environment, religion, and more (Scott, 1988).

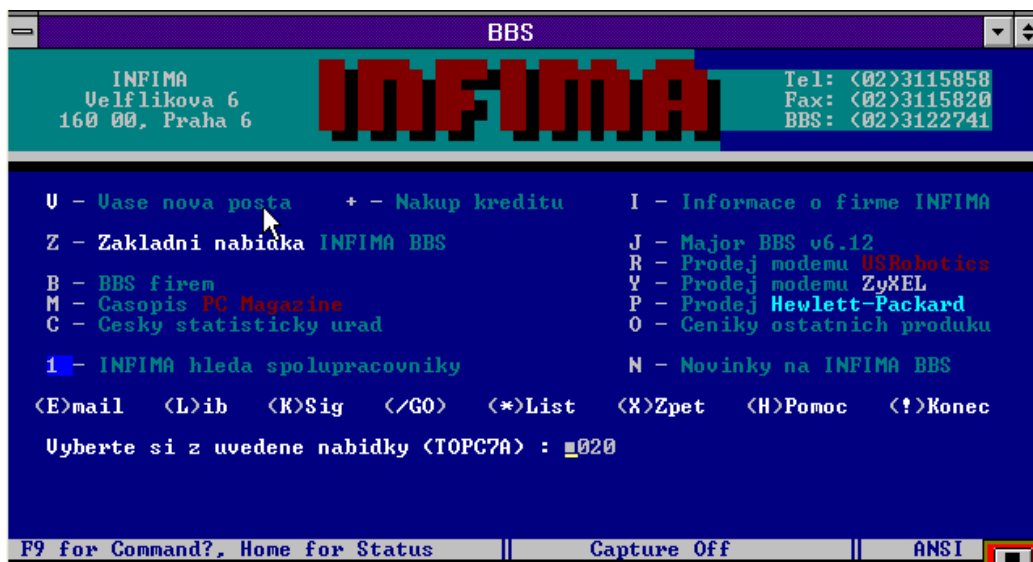
Today, however, social networks have a completely different meaning. As previously stated in Table 1, social network sites are platforms that enable users to connect with other people through personal profiles. As Boyd and Ellison (2007) explain, that modern SNS allow individuals to:

1. construct a public or semi-public profile within a bounded system
2. articulate a list of other users with whom they share a connection
3. view and traverse their list of connections and those made by others within the system

With the nature and nomenclature of these connections varying on each of the platforms.

However, the first technological step towards the current type of SNS has been made in 1979, when the first BBS or “*Bulletin Board System*” was developed in the USA. The BBS worked as an electronic bulletin board, chatroom, and file share server in one. Users could post text messages under certain threads and topics and communicate. This primitive predecessor of a Facebook feed and forums has however had some technological downfalls (mainly since it depended on the number of telephone connections and modems connected to it) and could only serve few people at a time.

BBS has been mostly popular among university students, and many were created in the 80s and used throughout the 90s also in the Czech Republic (for example BBS Liane, BBS Piskoviste, and others). You can see the UI of another famous BBS in the below picture, where one of the first Czech “commercial” BBS’ – Infima, is depicted.



Picture 1: BBS Infima, 1994¹

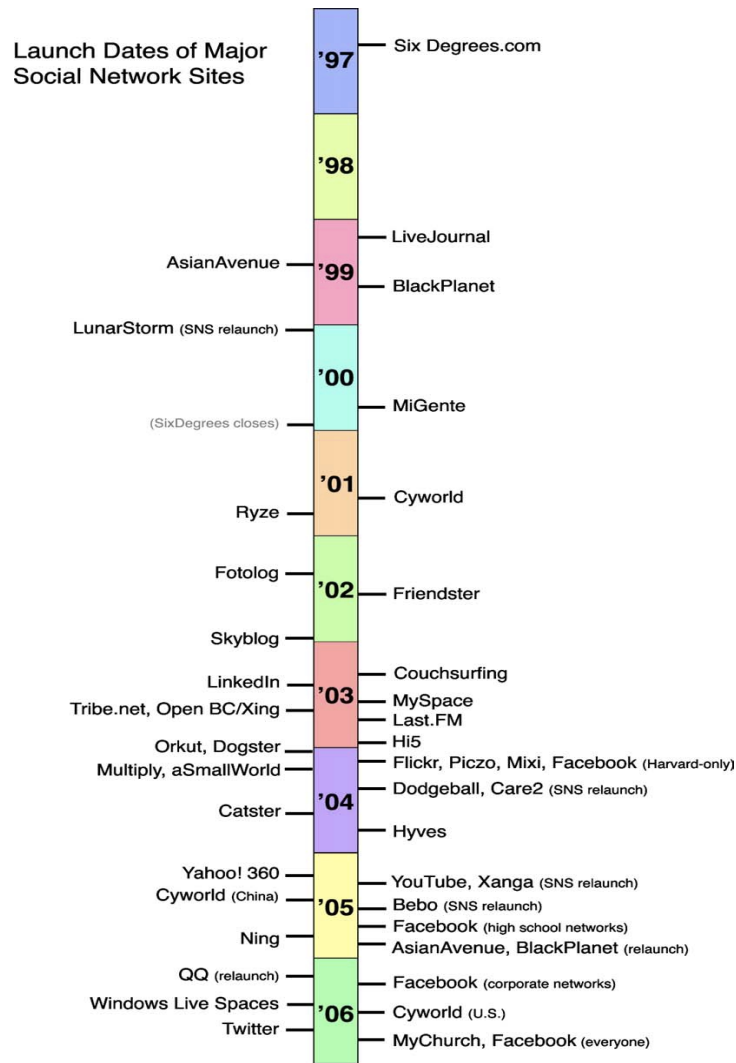
¹ Source: Peterka, J., 2005. Historie českého internetu: BBS, alias Bulletin Board System. Archiv článků Jiřího Peterky. Available at: <http://www.earchiv.cz/b05/b0701002.php3>

Ten years after the BBS was developed, at the beginning of the 90s, the first IRC (Internet Relay Chat) *OuluBox* was created by Jarkko Oikarinen – this was a giant step in communication on the web since the IRC has allowed the user to chat in real-time. Swift development has ensued, and many other platforms (like classmates.com, AIM, and ICQ) were launched. In 1997, groundbreaking SixDegrees.com was developed, and therefore first “historical” social network welcomed its users. SixDegrees however was ahead of its time, and after reaching 1 million active users, it had to be shut down in 2000 due to financial problems.

From 2003 onwards, following the bandwagon of popularity, many other social network sites were developed and welcomed new users. Amongst the most popular, we can see sites like Friendster, MySpace, Last.fm, Couchsurfing, and finally, the king among all - Facebook. But unlike the previous ones, Facebook was primarily created by Mark Zuckerberg in 2004 as an SNS for Harvard College students only, therefore a “niche” group, that others wanted to be part of.

To join “TheFacebook.com” you either had to be a student with a college email address or later, a professional in a corporate network (like Microsoft or Apple). This led to a surge of massive popularity and hype, as standard users wanted to join the coveted site as soon as possible. All has changed in 2006 when Facebook has finally opened its doors to everyone and slowly turned into the social network giant, as we know it today (Boyd & Ellison, 2007).

An overview of the development of social network sites can be seen in Picture 2 below.



Picture 2: The history and development of SNS²

Facebook at its core, does not differ much from the previous types of networks, what has however made it so popular, was the fact that it can be tailored to the needs of the individual. The initial thought of creating communities and connecting people and groups has been facilitated by a large plethora of functionalities. Every user can edit their profile, share posts, stories, create events, like business Pages, like other people's content, sell things on the "Marketplace", search for different videos, or be part of an unlimited number of groups. Facebook has also developed its own instant messaging tool, which has later on

² Source: Boyd, D. m. & Ellison, N.B., 2007. Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication*, 13(1), pp.210-230. Available at: <https://academic.oup.com/jcmc/article/13/1/210-230/4583062>

also migrated into a separate app called “*Messenger*”. In many cases, Facebook has become a go-to method for connecting with other people everywhere. Instead of sharing your telephone number or an email, the phrase “*add me on Facebook*” is usually uttered by many.

In return for the ability to use services such as Marketplace, Search, and other features, Facebook is using data obtained from settings, connection information, and all the shared content from the activities that take place there, daily. The data collected also serve to provide appropriate user suggestions (for example groups to be joined, events that can be attended, people to meet, etc.).

Altogether, as long as the users are willing to share their data and daily activity, Facebook and other social media can provide them with a unique experience. However, one of the biggest disadvantages to this algorithmic approach are the side effects like filter bubbles³, growing animosity of the users towards those with different opinions, and overall polarization. This, however, can be seen in every type of social media we use. When speaking about the usage of Facebook as a tool for the students and professors, one of the favorite tools used is by far the groups both on Facebook as well as on Messenger. A deeper insight into the usage of Facebook as an academic tool will be discussed in the following chapters.

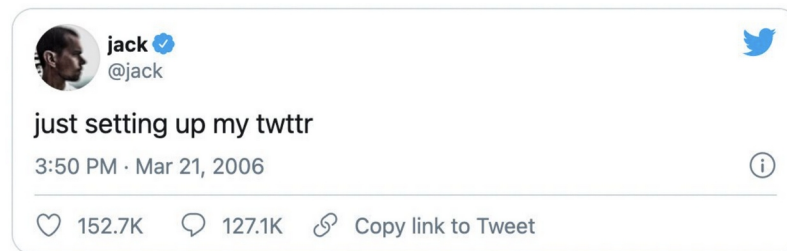
As mentioned earlier (see Table 1), one of the similarly working social media are microblogging platforms like Twitter. They combine standard social networks and blogs in a shortened, easy-to-use fashion. In the case of Twitter - all communication shared needs to be a maximum of 280 characters long. This number has been doubled in 2017, as up until then, Twitter only allowed messages with 140 characters instead. Registered users of Twitter can post, like, and “retweet” (reshare) messages, unregistered users can only view them.

The platform itself has been launched in 2006 by Jack Dorsey, who first introduced an idea to a shared “SMS” like service used to communicate with a small group.

This beta version of Twitter has been called “*twtr*” as the domain Twitter.com has been taken at that time. The first official tweet has been typed by Dorsey on March 21st,

³ a state of intellectual isolation that can result from personalized searches when a website algorithm selectively guesses what information a user would like to see based previous actions (Wikipedia, 2021)

2006, and the very same tweet has been listed as a non-fungible token (NFT) and later sold for charitable purposes in 2021 for the equivalent of 2.9 million USD.



Picture 3: Jack Dorsey's first tweet, 2006⁴

Twitter has been used as a go-to microblogging method for celebrities, journalists, media houses, and politicians alike and facilitates more than 400 million tweets a day, and hosts 396 million active users (Statista, 2021). In the educational sense, Twitter has been used by both students as well as university/school staff to facilitate a communication channel as well as a sharing platform for various projects.

1.2.2 Media sharing sites

One of the most popular social media platforms are media sharing sites. Their main objective is to share media among users. There is a huge variety of content communities, which share different types of media with each other. We have some dedicated to photos (like Flickr), videos (e.g., YouTube or Vimeo), or PowerPoint presentations (e.g., Slideshare). One main difference between all the aforementioned is that media sharing sites do not necessarily need a registration or a profile creation to provide the user with a full experience. The only need for a profile is when the user wants to personally distribute media and share it with others, or as a secondary intention, to monetize it.

Among those mentioned, the most prominent is by far, YouTube, as it has been part of the “big three” (the three most visited webpages on the Internet) early after its launch in 2005 (Statista, 2021).

YouTube, which was originally founded by Steve Chen, Chad Hurley, and Jawed Karim is a perfect example of an interactive medium with its initial function to “*Broadcast Yourself*”. The main function of YouTube is to stream user-generated video content,

⁴ Source: Twitter.com

created under a certain user profile, or “channel” and to share it via any technological means – through other SM, like social networks, blogs, or through email. These videos are then available for watching to all users alike. YouTube videos became embedded in the internet culture from early on, as all types of video content have been migrated there over the course of the last 16 years.

Regarding academia, according to Carrasco-Gallego (2017), YouTube has been primarily used as an education tool in several areas, mainly “nursing, management, education, or sociology. In these experiences, YouTube was used to support pedagogical resources tailored by the instructors or prepared for educational purposes”.

Carrasco-Gallego (2017) then follows with an explanation, that YouTube has been used in several different ways, primarily as short clips embedded in presentations related to course work, pre-taped educational materials (especially in medicine).

1.2.3 Collaborative sites

Other often used social media platforms are collaborative sites and wikis, such as the famous Wikipedia. These types of platforms in the words of Kaplan and Haenlein (2010) enable “*the joint and simultaneous creation of content by many end-users and are, in this sense, probably the most democratic manifestation of UGC*”. Wikipedia is probably the best example of a long-term running collaborative platform that allows users to add, remove and change mainly text-based content.

As of now, the online encyclopedia is available in more than 230 languages and serves as one of the most sought-after knowledge sources on the Web, hence it's ranking as the 13th most popular site worldwide. It houses more than 56 million articles, has been praised by many for the democratization of knowledge and due to that censored or even blocked by the world governments at various points in history. (Wikipedia, 2021)

The idea behind Wikipedia and these types of platforms, is that the more contributors are working together on a shared goal (e.g., a wiki term), the better the outcome, as a sole individual could never achieve the desired level of quality. Nevertheless, not everything written on sites like Wikipedia must actually be true, and a cautious approach towards the information shared should be adopted.

All open collaborative platforms are unfortunately sharing one major drawback – a necessity of maintaining a big number of volunteers to contribute, as well as manage the massive amounts of data uploaded. Therefore, all need to have a small circle of highly invested contributors to oversee and direct the data input and other users. However, these types of key contributors are statistically pre-destined to stop participating and contributing at a certain point in time (Panciera et al., 2009).

Halfaker et al., (2013) also add that the „success of an open collaboration project appears to be highly correlated with the number of participants it maintains. Projects that fail to recruit and retain new contributors tend to die quickly“.

With this in mind, all collaborative platforms must retain a certain flow of new members, which are then welcomed and socialized within the “inner circle”. Wikipedia has proven to manage this process quite effectively and the community behind it grew from hundreds in 2001, when it was launched, to thousands in 2007, where the peak number was more than 56 000 active editors and contributors. This has eventually been the reason why Wikipedia has reached its level of quality and completeness (Halfaker et al., 2013). After 2007 however, the number of active editors has begun to slowly decline.

Other wiki-type-like platforms launched afterward and have been used in various types of settings. One of the most popular usages of wikis is however amongst the students and school or university staff.

2 SOCIAL MEDIA AND ACADEMIA

As it has been mentioned many times, the combination of social media and higher education serves as a compatible pair to bring institutions, professors, and students closer together (Karvounidis et al., 2014; Manca & Ranieri, 2016).

The use of social media and their potential for education (Osgerby & Rush, 2015) have proven to be one of the topics that deserve research not only in relation to the previous chapters but also due to the increasing usage of social media in the daily life of students.

Lau (2016) states that “In education, social media can be used to share information with students, collect information when overseas or while conducting research, share personal academic interests with other people, engage students and understand what they think about during instruction....“ and therefore rendering them as useful.

The usual platforms that are used throughout the world may differ, but for example, Manca and Ranieri (2016) described Facebook, Twitter, YouTube, or Wiki as one of the most common forms of social media used in education. Other research papers imply the same, however, the means of how each of the platforms are used can be very different and usually are up to the professor or other university staff.

Facebook, for example, can be used as a learning tool (Moghavvemi & Salarzadeh Janatabadi, 2017) and can serve as a very good place to connect students and promote university interests (Yu et al., 2010). It can also be used as a good platform to gather and share information with both students each other as well as their professors, for example with using their group wall function (Junco & Cotten, 2012).

As mentioned in previous chapters and as Wang et al. (2013) point out, for example, Wiki is especially useful in joint collaboration projects, as well as an interface for feedback and interactive learning (Churchill, 2009). In the case of media sharing websites such as YouTube, for example, it has been confirmed that many students have used YouTube to learn and search for information, video guides, or recorded classes, even though studies show that the use of YouTube for academic learning and its effectiveness as a teaching tool is not as prevalent, as for example Facebook (Moghavvemi et al., 2018).

On the other side of the spectrum, according to Ravizza et al. (2014), non-academic Internet and social media usages among university students are negatively correlated with

their academic performance and concentration during classes as shown in their final examinations. In addition, the effects of continuous usage of social media for non-academic purposes during classes can also be seen as a detrimental factor, which in the long run can be assessed as the source of declining engagement in schoolwork.

Therefore, the next chapters are focused on social media usage for academic and non-academic purposes, to explain the advantages and disadvantages of incorporation of social media into academia.

2.1 Social media usage for academic purposes

As stated, for example, by Vorderer et al. (2016), younger generations have a constant tendency to be online everywhere. There are rarely any “social” situations (whether in private or in public) in which today’s young adults, or adolescents for that matter, go voluntarily offline. Hyperconnectivity is ubiquitous, even within classrooms and therefore, as a result, there has been a change in recent years, in how we work with social media in an educational sense.

In higher education and university especially, both faculty staff and students have been increasingly using various types of social media in academic setting both inside and outside of classrooms. To distinguish the positive, Legaree and Yeoman (2015) have named several educational benefits which are directly associated with social media usage:

- A. increased communication between students and instructors
- B. increased student-to-student networking or collaborations
- C. enhanced or accelerated sharing of data, information, or ideas
- D. means for students to engage with course material outside of regular class time
- E. provision of an alternative to institutional learning management systems
- F. exposure to technologies and skills that may aid student employability

One of the most prominent social media platforms, Facebook, is especially popular among students (Moghavvemi et al., 2017), as the Facebook group walls can be used as a way to share announcements, resources, and become overall an easy way to knowledge sharing and cooperation between students. Mazer et al. (2009), as well as Wang et al.

(2012), also argue, that teachers' self-disclosure on Facebook, can promote classroom atmosphere, teacher's credibility, and student-teacher relationship, and with that being said, they have concluded that Facebook can indeed increase student motivation, overall satisfaction during coursework as well as classroom climate. (Wang et al., 2012)

As for the student's point of view, for example, Lambić (2016), as well as Manca & Ranieri (2013) state, that students usually respond positively when it comes to using Facebook and other social media for education and welcome it as a tool, however, a substantial number of students do not want to rely on Facebook as a primary source for lectures. Rambe (2012) then even fortifies these findings with research, where students, if allowed, like to share, and exchange practical information about their studies on Facebook but like to keep it separate from their private lives.

According to Knight and Kaye (2016), Twitter has also been a prominent player in terms of sharing data amongst students. The study by Knight and Kaye suggests, that Twitter can serve as a source of information for both academics and students alike, however, the type of usage differs between the two.

While academics mostly use Twitter as a medium to share their academic findings with others, create academic-related events, or network with other professionals, students are likely to converse mostly between each other, retweet, or consume content presented to them (Knight & Kaye, 2016). The use of Twitter throughout academia, therefore, differs between those actively working in it and those studying. The way Twitter is used in classrooms can change depending on the type of lecture, professor, or environment. However, several studies showed promising results when Twitter was used as a tool for making education more attractive and instant.

For example, Blessing et al. (2012) used Twitter to promote humorous and course-related information to students, Kim et al. (2015) surprised students with course-related questions during a large-scale lecture, to which students would answer and later, mainly due to this activity, achieve higher exam scores and overall improved concentration on the topic of the lecture.

Given the opportunity, students have also shown a much higher engagement in schoolwork when promoted to set up lecture-related debates on Twitter (Tur & Marín, 2015). Twitter has also shown positive effects when used outside of the classroom, for

example when used as an additional channel for sharing course-related announcements to students, contacting them, or sharing additional resources (Pollard, 2014). Overall, the usage of Twitter is numerous – from microblogging about certain lecture topics, giving instant feedback, online quizzes during lectures with hundreds of students. As shown above, the main “function”, to instantly socialize, is utilized.

As previously shared (see 1.2.2 as well as above) and in addition to other previously mentioned social media, YouTube can serve as a helpful visual tool, where standard written content is no longer enough to demonstrate certain topics. Moghavvemi et al. (2018) have reported, that using videos shared on YouTube in classes, can bring more student satisfaction, improve overall attention and retention of facts mainly in bio-medicinal lectures. Dupuis et al. (2013) even add to previous statements, that according to their study, using visual aids like YouTube can lead to better academic performance - a test group of biology students, who volunteered to watch online videos related to their course work, ended up with better grades compared to their classmates who chose not to participate (Dupuis et al. 2013). This means that if used correctly, YouTube can serve as an “easier to process” and useful source material, for information that would have been complicated to grasp without it.

Overall, it can be said that according to numerous studies, there is a lot of potential in using multiple types of social media inside and outside of classrooms in relation to education. Many examples mentioned beforehand show that if correctly put into practice, social media can be used as a fun, new tool that can initiate excitement, deepen engagement, and overall ease learning of new educational content. As of now, in 2021, social media and the Internet in general, have played a major role in establishing connections between students and professionals alike.

However, there are certain disadvantages when it comes to social media usage, not in relation to academic preparation or work. These are discussed in the following chapter.

2.2 Social media usage for non-academic purposes

There can be no doubt, that within a very short span of time, a mere decade and a half to be exact, a rapid change in the availability and use of social media has emerged. A new

way to communicate using an instant online connection between not only individuals but also an abundance of media content.

In the last couple of years, these dynamic connections have overruled the web, and are used primarily for communication from user to user, but also as an in-group communication tool, for searching and consuming information and data, as well as for everyday entertainment and problem-solving.

However, this mediatization has led to several positive and negative consequences. Even though we can now form “instant relationships” and support groups based on people we do not necessarily need to know, we can be also a target of cyberbullying, data theft, or social pressure. (Vorderer et. al, 2016)

Moreover, one of the fundamental changes that have arisen from the way we now consume media – instead of using it to connect or consume a stream of data only in a certain time a day, or week, being online has turned into permanence. A hyperconnectivity has emerged and with it, also a significant rise in other in essence negative consequences, such as procrastinating activities inside and outside of classrooms, technostress, and social media addiction.

Nevertheless, in the context of this thesis, it is necessary to differentiate between using social media for non-academic purposes in one’s own free time and in school-related situations.

Lau (2016) has identified several groups of non-academical usage of social media, such as messaging, media sharing, internet searching, video gaming, and others. However, to correctly determine which exact actions are actively done by users is almost impossible.

2.2.1 The risks of social media usage for non-academic purposes

Technostress

As mentioned earlier, one of the negative factors with hyperconnectivity and social media usage, is technostress. This term is a recently emerging problem, which is related to increased digitalization of our lives. Technostress is a long-term pathological reaction in relation to working with either computer or any other digital technology. (La Torre et al.,

2019) Therefore, people in constant touch with technologies, such as computer or a mobile phone, may experience technostress due to some underlying stressors, such as information overload, or aforementioned hyperconnectivity.

La Torre et al. (2019) then continues with an explanation that „The consequences of technostress seem to impact both on business and relational sphere, causing absenteeism, decrease of effectiveness, conflict and isolation.“

Social media addiction

Secondary effect that can occur when using social media is in direct opposite in nature, it's social media addiction.

In general, the term addiction, has been mainly related to alcohol and drugs. However, in recent years with the increased use of computers, mobile phones and social media – a technology related addition has emerged, and has been a problem occurring since the mid-90s. (Shaw & Black, 2008). Internet addiction has been at the center of academic research for some time, and in words of Zhao (2021) this “refers to the obvious social and psychological damage caused by excessive use of the Internet, and brings serious harm to users’ physical and mental health.“.

As mentioned in previous chapters, Internet and social media have become inseparable from the minds of today’s students, however psychological research points to the fact, that overuse of social media by individuals, who cannot control the time they spent there, can lead to social media addiction. (Tang et al., 2016)

Zhao (2021) also pinpoints the inclination the users to addiction followingly:

„It is argued, that using social media can bring satisfaction to users, which is the main reason for the addiction disorder developed on social media. Due to the diversity of social media functions, users may be addicted to social activities, such as posting, sharing content, or other activities, such as playing games“

Generally speaking, with increased social media usage a danger of addiction can occur, however, it can still be mediated, through the time spent on the social media all together. (Zhao, 2021).

Academic procrastination

When speaking about social media usage in a broader context, one term that is inherently used time and time again is “*procrastination*”.

No matter what type of platform is used, the action of avoiding academic duties is omnipresent (Ferrari, 2001).

The phenomenon of procrastination, which has attracted attention mainly in recent years, thanks to the great influence of social media and hyperconnectivity on students' organizational skills and productivity, has been researched from many perspectives and has been described in countless publications in the last few years. The effects of procrastination on academic work, study results, time management, and, last but not least, on students' self-evaluation are very profound.

General and academic procrastination

The concept of *general procrastination*, as the adjective suggests, deals with a broad view of this phenomenon and examines it for a large target group, ie the population in general.

Academic procrastination is currently the most frequently mentioned type of procrastination in general. It is a narrowed study depending on the behavior of the target group, ie students. It is, therefore, a partial part of the general one and examines mainly the behavior of students in the academic environment.

This type of procrastination is most often associated with the inability of students to properly prepare for the study period. Traditionally, it is delaying the beginning of writing seminar papers, or their completion, inability to study in time for exams, delaying consultations with leaders and professors, or submitting any projects on time or even before the deadline (Ferrari, 2001).

Usually, academic procrastination is perceived as a type of student behavior that is described as "a voluntary delay in the intended course of study-related activity, even if the result is an expected and deliberate delay" (Steel & Klingsieck 2016).

According to Steel (2007), this type of procrastination affects more than 70% of university students and is said to be associated with unsatisfactory academic performance,

lower levels of well-being, stress, and anxiety. Academic procrastination was closely linked to research with delayed completion of tasks, self-realization, and impulsivity, poor self-control, susceptibility to distraction, organization of study and time, or motivation to succeed.

Klingsieck (2013) identified four main theoretical perspectives to understand the reasons for this behavior.

1. **The perspective of differential psychology** - the tendency to procrastinate is perceived as a part of the personality
2. **Motivational and electoral psychological perspective** - procrastination is a failure in motivation and/or will, connects with motivational aspects such as self-sufficiency and goal orientation, or optional aspects such as time management.
3. **The perspective of clinical psychology** - this perspective focuses closely on the clinically relevant extent of procrastination, so it most often connects it with anxiety, depression, stress, and personality disorders.
4. **Situational perspective** - focused on examining situational and contextual aspects of procrastination, such as the characteristics of the teacher and the tasks themselves.

It is already clear that the effects of academic procrastination on a student's studies are obvious and not negligible, as well as on countless other aspects of their life. Unfortunately, research agrees that, with a few exceptions, these are mostly negative effects. Procrastination often results in a decrease in productivity, poor academic performance, and often a decrease in overall student activity.

Research by Grun (2015) also points out that 80% of heavy procrastinators also acknowledge the strongly negative impact of procrastination on the overall approach to study. Only 20% of severely procrastinating rate this phenomenon as neutral. Of all the areas of impact of procrastination, their academic studies were clearly the most influenced.

Regarding the specific impact on academic results or grades, the results of research differ somewhat. For example, Beck et al. (2000) claim in their research that procrastination negatively affects school results through shorter study time. In contrast, other research rejects the correlation between poor learning outcomes and the rate of

procrastination. For example, Solomon and Rothblum (1984) point to the fact that in their research, a group of procrastinating and non-procrastinating students achieved high scores in both cases. He, therefore, denies the correlation between the mark and procrastination. From the findings of various research, we can generally say that procrastination negatively affects the course of study, the student's psyche, and his or her ability to work more effectively within the means but does not necessarily interfere with the student's grades as such.

2.3 Social media multitasking

Having the possibility to be a part of this ever-so-growing and oversaturated media environment has led to a transformation in the way people consume content. The omnipresence of technology, such as telephones, tablets of computers has increased the possibility to use social media in academic activities and therefore has increased of possibility of one unwanted phenomenon – social media multitasking (van der Schuur et al., 2020).

Multitasking, in general, can be described as engaging in more than one activity at a time (Wood & Zivcakova, 2015). However, the manner, in which each individual multitasks can vary. In essence, Wood and Zivcakova (2015) continue explaining three main types of multitasking: dual-tasking, rapid attention switching, and continuous partial attention.

The first term – dual-tasking, is what is usually classified as multitasking by the general public and can be described as a situation, where one can complete two different tasks simultaneously. Rapid attention switching means that an individual switches focus between several tasks at hand and continuous partial attention refers to an individual's division of attention continuously between more than one task.

Media multitasking – one's ability to consume more than one stream of data, has become a skill and characteristic that most people have all in common and has become second nature to them. Never mind the type of multitasking (as described above), studies have shown, that social media multitasking mostly occurs among youth and especially younger generations like millennials, generation Z, or A⁵.

⁵ Millennials = people born from 1980 till 1996, Gen Z = people born from 1997 till 2012,
Gen A = people born after 2012

As discussed by Voorveld and van der Goot (2013) in their study, younger generations have spent more time by media multitasking than their older counterparts (Baby Boomers, Generation X⁶).

Many researchers have examined the effects of media multitasking in various different settings ranging from classrooms to the workplace. Some even compared the differences between heavy media multitaskers and light media multitaskers and the impact of media multitasking on adolescents, which in conclusion proved to be negative (Ophir et al., 2009). Others have focused on the link between higher levels of media multitasking and poor performance in memory-related tasks, their attention, and overall cognitive functions (Ophir et al., 2009; Baumgartner et al., 2014; Wiradhany & Nieuwenstein, 2017; Uncapher et al., 2016).

Van der Schuur et al. (2020) have described the recurring media multi-tasking in a classroom climate as following:

„ ...[] adolescents often use media and communication devices during homework and while attending class, not only for academic but also for non-academic purposes. Using media during academic activities for non-academic purposes is referred to as academic-media multitasking (AMM). About half of adolescents indicated that they sometimes or often watch television, use social media, or engage in text messaging during their homework.”

They then follow by explaining, that this type of activity actually occurs with more than 60 % of young adults and adolescents. (van der Schuur et al., 2020).

Although multitasking is not a new phenomenon, the way we multitask has changed tremendously. The difference lies mainly in the number and type of digital technologies and digital-based activities we can do simultaneously (Wood & Zivcakova, 2015).

However, the overall findings in both cases of (standard vs. social media) multitasking are pointing in the same direction, that there is an obvious correlation between worse academic performance, overall poor results in cognitive and memory-based tasks and it is generally expected that those, who do not participate in any form of multitasking whatsoever might be able to outperform others in cognitive, memory or academic-related tasks (Wood & Zivcakova, 2015; Lau 2016).

⁶ Baby boomers = people born between 1946-1964, Gen X = people born from 1965 till 1980

2.4 Academic Performance

When speaking about academic performance, the most usual mean of measure in most of the research and studies are done, is either grade point average of the student's achievements (Lau, 2016) or as a lecture and homework assignments (Wood et al., 2012).

Grade point average (usually spotted under abbreviation GPA) is a number, which indicates how well or high do students score in their courses on average. The means of the scoring differ significantly from state to state all over the world. The GPA typically shows the scores in all classes throughout the semester, term on a school year. In essence, all grades are recounted into a scale, which can be different from state to state, however usually scaling is from 1.00 to 4.00, with 4.00 being the highest score a student can get.

There are different methods on how to evaluate students cross-state, for example in Europe, the European Credit Transfer and Accumulation System (ECTS) is used to help convert grades between different universities and European countries.

However, the evaluation in terms of GPA differs on every university or higher education institution in the world. Further information on the context of GPA will be shared in the following chapter.

3 ANALYSIS OF THE INFLUENCE OF SOCIAL MEDIA ON STUDENT ACADEMIC PRODUCTIVITY

3.1 Introduction

Following the trend of people adopting social media into their lives as laid out in the theoretical part, in recent years the presence on these platforms has been an extension of reality of sorts, for many people. This proved to be even more truthful with the new decade throwing the world into a global pandemic, forcing them to fully immerse into the digital for their own safety and the safety of others. Usage of social media has been quickly adopted as a go-to method of communication, sharing of information, as well as sentiments or opinions.

In 2020, social media usage and constant hyperconnectivity, have become even more prominent as people's need for social connections has increased, whilst being forced into isolation. It has become an indispensable part of daily routine, even more so for students who were heavily present on the internet even before.

According to Pew Research, 91% of people between 18-29 years use social media, however, not much is perhaps known about how this affects university students in the truest sense of the word – their studies and academic performance.

This research strives, by using qualitative research methods and data accumulated from Czech university students, to replicate and enlarge research done by Wilfred Lau in 2016. Given the fact, that most research papers presented in the theoretical part focused on either different parts of the world (including Lau's) - mainly Asia, Africa, and in the smaller sample - the USA, different age groups (mainly high schoolers), or have been conducted in the previous decade, this research and analysis aim to place the findings and hypotheses as presented by Lau into the context of 2021 Czech republic.

The theoretical part of the thesis aims to define the subject and context of the research, ie. to clarify the topic. In the analytical part, the intention is to answer research questions and verify the established hypotheses, based on the developed theory and

research completed by Lau, in 2016. The subject of the analysis is whether or not and how, does exactly, social media and social media multitasking relate to academic performance.

Empirical research was carried out with the help of quantitative research, specifically in the form of a questionnaire survey. The data obtained through the questionnaire survey were processed and subsequently evaluated in relation to the source study presented by Lau.

3.2 Source study by W.E. Lau

The primary objective of Wilfred E. Lau's research from 2016, was to examine whether and how social media usage and social media multitasking influenced the academic performance of 348 undergraduate students in Hong Kong.

Mass emails were sent by the research team to all undergraduate students to voluntarily participate in the study, and to increase the number of respondents an HKD 100 cash coupon in a lucky draw was offered as well.

All responses were collected anonymously via an online survey website and the questionnaire was comprised out of questions on 4 main topics:

- Social media usage for academic purposes
- Social media usage for non-academic purposes
- Social media multitasking
- General demographical data

In the terms of measurements, several different approaches were selected by Lau for the evaluation of each of the topics.

For the social media usage for non-academic purposes (SMUNAP) a scale was developed by combining "*The Media Usage Subscale of Media and Technology Usage*" and "*Attitude Scale*". The study adapted 12 items in total that measured *media sharing* (MS comprising of two items, *video watching* (VW comprising of two items), Internet searching (IS comprising of four items), and *video gaming* (VG comprising of three items).

For these items, a 10-point frequency scale was constructed where the point meant following: 1 (never), 2 (once a month), 3 (several times a month), 4 (once a week), 5 (several times a week), 6 (once a day), 7 (several times a day), 8 (once an hour), 9 (several times an hour), and 10 (all the time).

For scaling the social media usage for academic purposes (SMUL), Lau's has adapted the "*Social Media Learning Scale*". The scale measures mainly student perception of the location of social media to support academic learning. All items under SMUL were rated on a 5-point Likert-type scale, with 1 (Strongly disagree) to 5 (Strongly agree).

Social Media Multitasking (SMM) comprised of three items, which were "I multitask with my social media account while studying", "I remain online with my social media site(s) while doing homework", and "I do not check my social media account if I am doing my work for school." These items were also rated on a 5-point Likert-type scale from 1 (strongly disagree) to 5 (strongly agree) with the last item being reverse coded by Lau.

Lau's last dependent variable is academic performance. Academic performance was evaluated with a single item, where participants were required to provide their cumulative GPA in an open response format.

Lau then proceeded with several different methods of analysis. He used exploratory factor analysis with a principal component method with promax rotation on all of the variables shown above and proceeded to explain the matter further using descriptive statistics.

The findings regarding the major variables were as following: on average the participants in Lau's study have engaged in video watching (VW) several times a week, in media sharing (MS) almost once a week, internet searching (IS) once a day and video gaming (VG) once a week.

All the participants held neutral or ambivalent views towards SMUL and its application in class and agreed that they multitasked while preparing for their academic work. The overall mean GPA of the students was 3.178 with 4.0 being the maximum value possibly obtained in Hong Kong universities.

According to Lau, one of the most significant negative correlations in his research was between VG and academic performance. Meaning that the more the student engaged in playing video games in his / her free time, the more negative was the overall score achieved in the university.

Lau then proceeded with a hierarchical regression analysis which was applied to academic performance in the form of GPA as a dependent variable and items mentioned before (VW, MS, IS, VG, SMUL, and SMM) as independent variables. He used age and gender as control variables.

In regard to these analyses, he then proceeded to approve two out of his hypotheses and disprove one of them.

According to Lau's analyses students who use social media more for non-academic purposes and who engage more in SMM perform less favorably academically.

The research however has not supported the correlation between increased social media use for academic purposes and better grades.

Overall, Lau's research has indicated that social media usage for non-academic purposes and social media multitasking play a role are negatively influencing academic performance.

3.3 *Final research*

3.3.1 Methodology

The following part of the diploma thesis describes its methodological part. The goal of the diploma thesis is determined and the type of research and the method that was used to fulfill the goal is introduced in the following pages.

3.3.1.1 Research questions and hypotheses

Because the aim of this research is:

1. to replicate the analysis of Lau's already existing research study

2. to extend the dataset with new respondents coming from a different country and year

The research question, as well as all three hypotheses, have also been replicated and are described and discussed below in the context of the Czech republic.

Research Question

Even though Lau does not specifically mention a definite research question in his work, the following one could be a summary of the questions posed in his introduction and reflection on the literature review done.

To what extent does social media usage influence the academic performance of students?

Hypotheses

The source research specifically states three definite hypotheses, which are summarized as follows:

- **Hypothesis 1:** Students who use social media more for nonacademic purposes perform less favorably academically.
- **Hypothesis 2:** Students who use social media more for academic purposes perform more favorably academically.
- **Hypothesis 3:** Students who engage more in SMM perform less favorably academically.

3.3.1.2 Research methods & operationalization

This chapter describes the procedure and methods that were used in the research and subsequent evaluation of the obtained data from the survey.

When duplicating the questionnaire survey, specific variables needed for research the topic were identified. According to Reichel (2009), operationalization, ie. the setting of variables, forms the basic criteria of research. The summarized variables are shown below.

Independent variables

The independent variable social media for non-academic usage has been divided into a total of four major variables, each a representation of a set of actions in relation to the social media usage by the students. Each of the variables and their sub-items have their abbreviation and are characterized exactly the same as in Lau's initial research (see 3.2).

Media Sharing	MS1, MS2
Video Watching	VW1, VW2, VW3
Internet Searching	IS1, IS2, IS3, IS4
Video Gaming	VG1, VG2, VG3
Social Media Usage for Academic Purposes	SMUL1, SMUL2, SMUL3, SMUL4, SMUL5, SMUL6, SMUL7
Social Media Multitasking	SMM1, SMM2, SMM3

Table 2: List of independent variables

One difference has occurred when using the Likert-type scale for both SMUL and SMM, as the values for each type have been reversed. Therefore, the scale goes from **1 (Strongly agree) to 5 (Strongly disagree)** which is in a direct reversal from Lau's.

Dependent variables

There was only one dependent variable in the research and that was *academic performance*.

Academic performance is evaluated with response in a multiple-choice format in the survey. The participants were required to provide their approximate cumulative grade through the last semester, ranging from:

- 1 – 1.50

- 1.51 – 2.0
- 2.0 – 2.50
- 2.51 and worse

Questionnaire

The most common and most often method of examination of the influence of social media on students has proved to be a survey. The same goes for the base research performed by Lau. Therefore, a questionnaire survey was replicated in the thesis as well.

A total of 28 questions were assembled, with six being of demographical nature (standard questions like gender, age, type of study, etc.), seven related to social media usage for academic purposes, twelve related to non-academical usage, and three to social media multitasking. The questionnaire is comprised solely of closed-answer-style questions, to which only one response was valid. Answers have been subsequently coded into numbers, to be processed via the IBM SPSS Statistics program.

An online distribution server click4survey.cz was used for the creation and initial distribution process of the questionnaire.

Prior to the distribution, the so-called preliminary research was carried out in order to eliminate possible ambiguities and increase validity. As part of this, the questionnaire was filled out by five people, who oversaw the comprehensibility, clarity, and continuity of the questions. During this preliminary research, the time needed to complete the questionnaire was also observed, as it affects the return and quality of the data.

The overall preliminary testing went without any disruptions and marked the questionnaire comprehensibility as good with an average fill-out time of around 5 minutes.

3.3.1.3 Data collection and analysis

Data collection has taken place in the form of an online questionnaire survey via probability sampling shared on the Internet a social media. The link to the survey was published on the author's social media profiles (both Facebook and Instagram), shared organically by other social media users, and put and in the following Facebook groups #SNMHub, CreativeCamp, #HolkyzMarketingu, Arts Management VŠE, and others.

The questionnaire was disseminated using the snowball method, ie. the snowball technique. It was distributed on the principle of sharing with other social media users, as a chain effect. This method is suitable for research of hard-to-reach populations such as students using social media in general, for whom there are no lists or other reliable selection support. The respondents were in no way compensated for their participation in the survey and participated in the research voluntarily.

Microsoft Excel was used for data analysis and the subsequent data sorting and coding. The data was then transferred to the IBM SPSS Statistics statistical program, where it was read, processed, and then analyzed.

The dataset was analyzed through multiple analyses. One of the first steps was to see all items and variables tested.

As step one, a Kaiser-Meyer-Olkin (KMO) test was run. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is a statistic, that indicates the proportion of variance in the variables. This variance may be a result of underlying factors i.e. “qualities” specific to certain items.

In general, high values (close to 1.0) indicate that factor analysis may be useful with the dataset. The factor analysis is used to determine if there are any underlying connections between the distinct variables themselves or their items, a “commonality” or simply a *factor*. The goal of a factor analysis is to reduce the number of variables to explain and interpret results.

At this point, Lau has indicated usage of an exploratory factor analysis with a principal component method with promax rotation, however according to newer statistical resources, recommended analysis for factors differs from the one used by Lau. Therefore, principal axis factor analysis with direct Oblimin rotation was put to practice.

All variables were tested under Bartlett's test of sphericity. This tests the hypothesis that the correlation matrix is an identity matrix, which would indicate that the variables are unrelated and therefore unsuitable for structure detection.

For some, additional testing in the form of Cronbach's Alpha test was needed to determine, if there are any internal deviances in between the items of a single variable.

Furthermore, to study the continuous linear relationship between the independent and dependent variables, it was most convenient to use a regression analysis. In this case, a hierarchical regression analysis, as this type was used in the initial source research.

Hierarchical regression in statistics is a method of examining the relationships between a dependent variable and several independent variables and testing the hypotheses about them. Hierarchical regression means that independent variables are not entered into regression at the same time but in so-called "blocks". Usually, a two-block analysis is done in order to determine the linearity.

For example, hierarchical regression can examine the relationships between GPA (measured by a numerical scale) and variables, including demographic data (such as age, gender, etc.) in the first block, and other variables (such as the time spent on social networks, stress, and others) in the second block.

3.4 Results and discussion

In this part of the diploma thesis, the questionnaire return, and the main characteristics of the examined sample will be presented. Then the results of the questionnaire survey will be presented together with their interpretation.

3.4.1 Return and sample structure

Data from the questionnaires were collected during July 2021. The dataset consists of a convenience sample. Probable expected participants were students between the age of 18 - 28+, studying either undergraduate, graduate, or postgraduate programs at different universities in the Czech Republic. Out of the 554 total opened questionnaires, 252 were worked on. Out of those, 68 had not finished the questionnaire in full scale and therefore had to be eliminated from the overall dataset. Therefore, 184 responses (N= 184) in total were collected as a valid sample. The overall response rate, i.e., the proportion between the number of opened vs. completed surveys, was 33 %.

The sample of the respondents will be discussed below, together with other demographical data from the first part of the questionnaire.

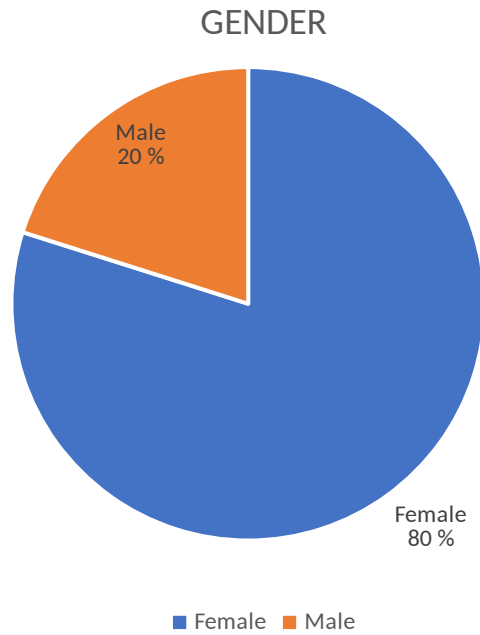


Figure 1: Structure of the dataset based on gender

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	female	147	79.9	79.9	79.9
	male	37	20.1	20.1	100.0
Total		184	100.0	100.0	

Table 3: Dataset by SPSS (GENDER)

Figure number 1 shows the overall structure of the sample based on gender. According to the figure above, and also the table with additional information from SPSS analysis, the sample structure is comprised of 147 female respondents and 37 male respondents.

The underlying reason that may be causing this disproportionate division is the nature of the groups where the link for the survey was shared, as, by an initial response on the social media, the biggest amount may come from semi-professional Facebook group housing more than 35 000 members called #HolkzyZMarketingu, which is predominantly female based. Additionally, it is also possible, that female respondents are more likely to finish the survey, as opposed to their male counterparts.

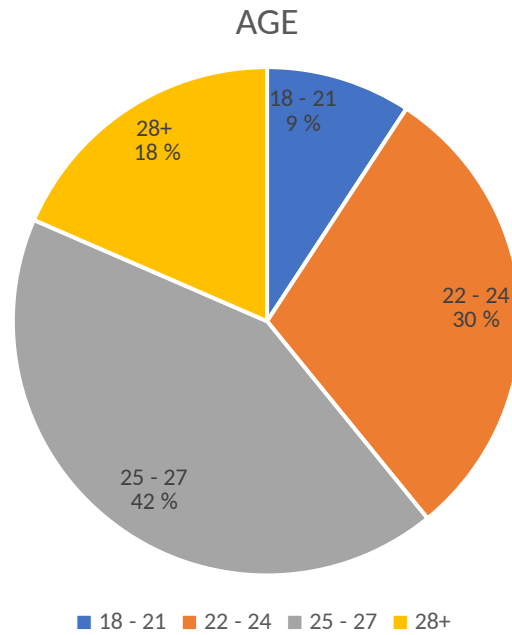


Figure 2: Structure of the dataset based on age

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-21	17	9.2	9.2	9.2
	22-24	55	29.9	29.9	39.1
	25-27	78	42.4	42.4	81.5
	28	34	18.5	18.5	100.0
Total		184	100.0	100.0	

Table 4: Dataset by SPSS (AGE)

Figure number 2 shows, that the most prevalent age group presented in the dataset were the respondents in ages between 25 – 27 years, which are accounting for 42 % with a total of 78 respondents. Closely behind, with 30 %, as the second largest, are respondents between the ages of 22 – 24. Lastly, the age groups of 28+ followed with 18.5 %, and the youngest respondents were only represented by 9.2 %.

These results go hand in hand also with the placement of the survey, as most of the groups are consisting of older people or are directly associated with master programs.

TYPE OF PROGRAM

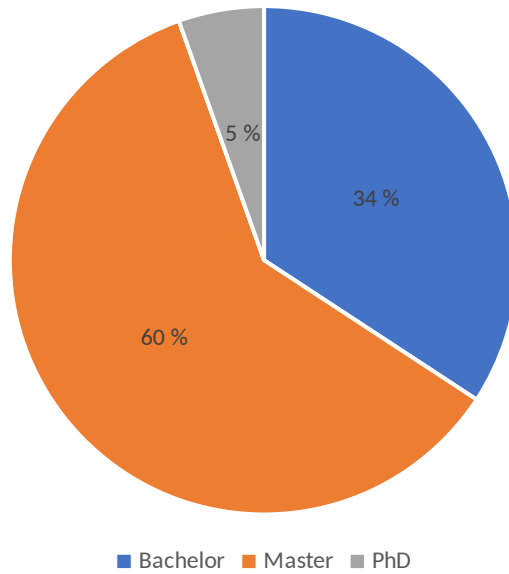


Figure 3: Structure of the dataset based on the type of program

Typeofstudy					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor	63	34.2	34.2	34.2
	Master	111	60.3	60.3	94.6
	PhD	10	5.4	5.4	100.0
Total		184	100.0	100.0	

Table 5: Dataset by SPSS (TYPE OF STUDY PROGRAM)

Figure 3 gives us a better understanding of the connection between age and the type of study program the respondents are enrolled into. As we can see, the majority of the sample is enrolled into either master’s 60 % or bachelor 34 % programs.

Given the fact, that Figure 2 has the biggest percentages in the age groups from 22 – 24 years and 25 – 27 years, which in total together accounts for 72.3 %, this is in direct correlation to the 60 % of the respondents being enrolled in a master’s program at their university. The remaining 12.3 % in the total can therefore be attributed to the younger part of the sample which are bachelors. The remainder enrolled to Ph.D. is represented by 10 respondents, creating an overall 5.4 % of the sample.

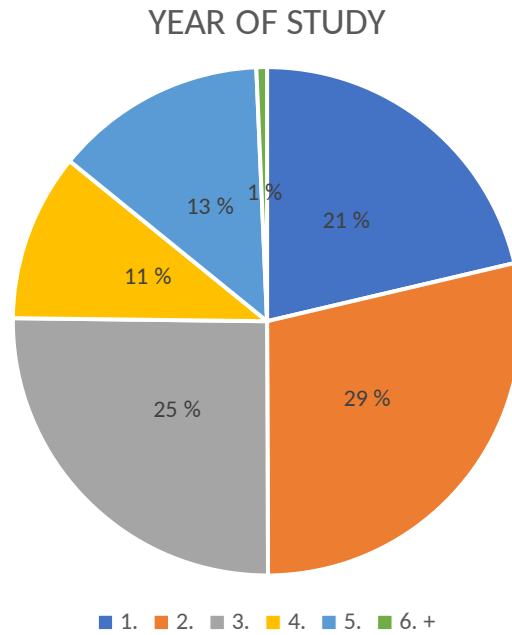


Figure 4: Structure of the dataset based on the study program

YearStudy					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	38	20.7	20.7	20.7
	2	51	27.7	27.7	48.4
	3	45	24.5	24.5	72.8
	4	19	10.3	10.3	83.2
	5	24	13.0	13.0	96.2
	6	7	3.8	3.8	100.0
	Total	184	100.0	100.0	

Table 6: Dataset by SPSS (YEAR OF STUDY)

As shown in Figure 4, the majority of the sample is either in the second, with 29 %, or third, with 25 %, year of their study. As the majority of the sample has shown to be enrolled into master’s program, additional analysis would be needed to determine, whether the third year should be accounted for bachelors, or masters who are late to complete their study in time. The third-largest group are the first years with 20.7 %, but as previously stated, a deeper analysis would be needed to determine the details.

One thing to mention as well is that there is also a probability, in which the respondents counted the overall years in their study together (meaning MA students can be both in 2nd as well as 5th year of their study). Therefore, the data above may be inconclusive and won’t be used as a part of the overall analysis in the next steps.

STUDY PROGRAM

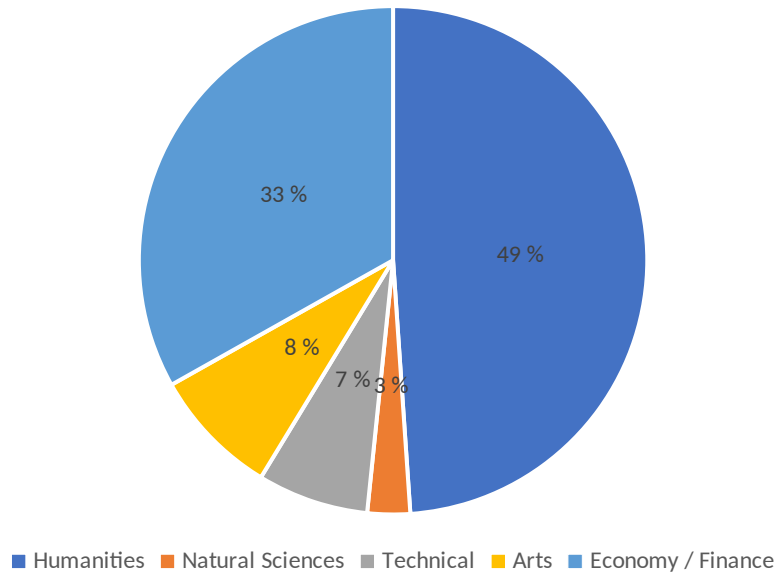


Figure 5: Structure of the dataset based on the study program

Study programme					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Humanities	90	48.9	48.9	48.9
	Natural sciences	5	2.7	2.7	51.6
	Technical	13	7.1	7.1	58.7
	Arts	15	8.2	8.2	66.8
	Economy	61	33.2	33.2	100.0
	Total	184	100.0	100.0	

Table 7: Dataset by SPSS (STUDY PROGRAM)

Figure number 5 serves as an indicator of the discipline which the respondents chose to study. Almost 50 % of them are currently enrolled into Humanities, with 90 respondents in total. The second major discipline is Economy or Finance studies, which account for 33 % in total and are comprised of 61 respondents. The other three Technical, Natural Sciences, and Art are altogether standing only for 18 %. The results presented in Figure 6 may also help to indicate the Figure 1 gender division, as Humanities are usually majors picked by women (AMACAD, 2021). In essence, the prevalence of Humanities and Economy studies may be present due to the nature of the groups to which the questionnaire was shared, similarly as in Figure 1 related to age.

3.4.2 Variable analyses

As indicated in the previous chapters (both 3.2 as well as 3.3.1.3), each type of variable has undergone a series of pre-tests before being incorporated into the overall analysis. These pre-tests are relevant for the research, as they can timely reveal potential problem variables or their items that could cause unwanted deviances or other problems in the overall research and the hierarchical regression analysis.

Video Watching (VW)

The first independent variable *Video Watching* was measured by 3 items in total and these items served as one of the casual usages of social media for non-academical purposes.

- A. VW1 – Watch TV shows, movies, etc. on TV
- B. VW2 – Watch TV shows, movies, etc. on a computer
- C. VW3 – Watch video clips on a computer

A principal axis factor with direct Oblimin rotation was conducted with these three items that measure video watching. The only variable that deviates significantly from the rest is VW1 connected to TV watching.

A Kaiser-Meyer-Olkin test demonstrated a KMO of .45, which is, according to Kaiser (1974) not acceptable and requires intervention by deleting the problematic variable or by including new variables which are connected to the problematic variable (Cerny & Kaiser, 1977).

In order to determine and confirm the problematic variable, Cronbach's alpha test to measure the internal consistency of the VW item group was done.

The test should show, how closely related are these sets of items as a group together, as Cronbach's Alpha is considered to be a measure of scale reliability.

As the average inter-item correlation increases, Cronbach's alpha increases as well – the average range is from 0 to 1, with 1 being the most reliable.

The three-item scale is therefore also considered unreliable as Cronbach's Alfa scored below 0.60 ($\alpha = .21$). As the research questionnaire created has already been closed to the public and is not accessible anymore, and this study cannot gather more evidence as it is limited by Lau's framework, there is a need to conduct a reliability check of the three items and exclude one in order to increase KMO and Cronbach's Alfa.

The results suggest that the scale could be improved by removing the VW1 item as Cronbach's Alpha would improve almost twice ($\alpha = .51$).

Even though this result is still not ideal, this study decided to continue with this battery with caution in mind. These final two items (VW2 and VW3) were computed into the **first independent variable Video Watching** ($M= 4.61$, $SD =1.58$) and the scale reached from a minimum of 1.00 to a maximum of 8.50.

Media Sharing (MS)

Another independent variable *Media Sharing* was measured by two items in total and these items are representing casual usages of social media for non-academical purposes as well.

1. MS1 – Download media files from other people on a computer
2. MS2 – Share your own media files on a computer

Both items in the variable are identical as principal axis factor analysis with direct Oblimin rotation shows the same values for both of them. Additional analysis of the items was needed in order to explain their variance. Therefore, eigenvalues were measured. Eigenvalues serve as “quality scores” for the factors. Only components with high eigenvalues are likely to represent a real underlying factor. They can be positive or negative in theory, but in practice, they explain variance which is always positive. If eigenvalues are greater than zero, then it is considered to be workable for future analysis.

Since variance, in essence, cannot be negative, negative eigenvalues mean that the model is ill-conditioned and cannot be worked with. Only one item showed an Eigenvalue above 1 ($EV= 1.46$) explaining 72.79% of the variance.

A Kaiser-Meyer-Olkin test demonstrated KMO to be .50, which is not ideal, but still can be used for research purposes.

The reliability of the factor is acceptable as Cronbach's Alfa is 0.63. These three items were computed into another **independent variable Media Sharing** ($M= 3.56$, $SD =1.72$) and the scale reached from a minimum of 1.00 to a maximum of 10.00.

Video Gaming (VG)

The independent variable *Video Gaming* was measured also by 3 items, which are as following:

1. VG1 – Play games on a computer, video game console, or smartphone by yourself
2. VG2 – Play games on a computer, video game console, or smartphone with other people in the same room
3. VG3 – Play games on a computer, video game console, or smartphone with other people online

As a standard, principal axis factor analysis with direct Oblimin rotation was conducted with these three items that measure video gaming. No flagrant deviances were found in any of the three items.

As a secondary, the Kaiser-Meyer-Olkin test was done and demonstrated a KMO of .62, which is, according to Kaiser (1974) is doable, even though it is not ideal.

The Bartlett's test for Sphericity showed results significantly different from zero $\chi^2(3) = 65.85, p < .001$.

Only one item showed an Eigenvalue above 1 ($EV = 1.71$) explaining 57.04% of the variance and therefore it is unidimensional. The reliability of the factor is questionable but acceptable as Cronbach's Alfa is 0.61.

These three items were computed into another **independent variable Video Gaming** ($M= 1.70$, $SD = 1.05$) and the scale demonstrates the minimum scale of 1.00 to a maximum scale of 5.67.

Internet Searching (IS)

The independent variable Internet Sharing was measured by four items, all four items are described below:

1. IS1 – Search the Internet for news on any device
2. IS2 – Search the Internet for information on any device
3. IS3 – Search the Internet for videos on any device
4. IS4 – Search the Internet for images or photos on any device

A principal axis factor analysis with direct Oblimin rotation was conducted with these four items that measure internet sharing. A Kaiser-Meyer-Olkin test demonstrated a KMO of .62, which is, according to Kaiser (1974) acceptable.

The Bartlett's test for Sphericity demonstrated results significantly different from zero $\chi^2(6) = 727.55$, $p < .001$.

Only one item showed an Eigenvalue above 1 ($EV = 2.56$) explaining 64.45% of the variance. The reliability of the factor is good as Cronbach's Alfa is 0.81 and can be improved by deleting item IS1 ($\alpha = .87$). These three items were computed into another **independent variable Internet Searching** ($M= 6.16$, $SD= 1.46$) and the scale reached from a minimum of 1.00 to a maximum of 10.00.

Social Media Usage for Academic Purposes (SMUL)

The independent variable *social media usage for academic purposes* was measured by seven items described below:

1. SMUL 1 – I feel a sense of community learning becomes interactive
2. SMUL2 – Posting questions to my peers helps me understand my readings better
3. SMUL3 – I am able to get faster feedback from my peers
4. SMUL4 – I am able to get faster feedback from my instructor
5. SMUL5 – I am able to communicate effectively
6. SMUL6 – I am able to connect with peers more easily than face-to-face
7. SMUL7 – I increase my participation in classes when I am allowed to contribute through social media

A principal axis factor analysis with direct Oblimin rotation was conducted with these seven items that measure social media usage for academic purposes.

A Kaiser-Meyer-Olkin test demonstrated a KMO of .74, which in essence is reliable and no other actions are necessary.

The Bartlett's test for Sphericity demonstrated results significantly different from zero $\chi^2(21) = 180.99, p < .001$.

One item showed an Eigenvalue above 1 ($EV = 2.50$) explaining 35.67% of the variance.

The reliability of the factor is questionable but acceptable as Cronbach's Alfa is 0.67 and could only be slightly improved by deleting item SMUL6 to 0.68. Therefore, the deletion of the seventh item was deemed unnecessary and all of these seven items were computed into another **independent variable Social Media Usage for Academic Purposes** ($M = 2.42, SD = 0.56$), and the scale reached from a minimum of 1.14 to a maximum of 4.14.

Social Media Multitasking (SMM)

The last independent variable *social media multitasking* was measured by three items described below:

1. SMM1 – I multitask with my social media account while studying

2. SMM2 – I remain online with my social media site(s) while doing homework
3. SMM3 – I do not check my social media account if I am doing my work for school.

A principal axis factor analysis with direct Oblimin rotation was conducted with these three items. Consequently, the Kaiser-Meyer-Olkin test demonstrated a KMO of .69, which is acceptable. The Bartlett's test for Sphericity demonstrated results significantly different from zero $\chi^2(3) = 127.07, p < .001$.

One item showed an Eigenvalue above 1 ($EV = 2.02$) explaining 66.72% of the variance. The reliability of the factor is good as Cronbach's Alfa is 0.75 and could not be improved by deleting any item. Therefore, these three items were computed into one last complete independent variable **Social Media Multitasking** ($M = 2.32, SD = 0.91$) and the scale reached from a minimum of 1.00 to a maximum of 5.00.

Grade Point Average (GPA)

The only dependent variable in the research and analysis all together is grade point average GPA, which was comprised out of a single item. The GPA is supposed to indicate the academic performance of the studied dataset.

1. GPA – What was the approximate average grade for the past semester

According to the research, 46.2 % of the students had an average grade between 1-1.5, with more than $\frac{3}{4}$ (86.4%) of students stated that their average grade was above 2 ($M = 1.69, SD = .75$).

3.4.3 Overall hierarchical regression analysis

As the aim of this analysis was to uncover a relationship between numeric continuous variables, and as was indicated in the initial source research, regression is applied.

Moreover, since one of the goals of the research was to reproduce the work of Lau (2016), this study has undergone in detail a hierarchical linear regression analysis, where

block one will only test control variables such as gender, or age. All the other independent variables, such as Internet Sharing, Social Media Multitasking, or Social Media Usage for Academic Purposes and others, were subsequently added into block two.

The hierarchical regression model with GPA as a dependent variable and gender and age as independent variables was deemed insignificant $F(2,181), = .36, p = .698$ and together the constant variables explain only 0.4 % of the variance in the GPA. To better understand the significance in terms of the model, see Table 8 below.

Significance Level	Specification
$p > 0.05$	not significant
$p \leq 0.05$	significant
$p \leq 0.01$	very significant
$p \leq 0.001$	highly significant

Table 8: Variable significance scheme

On the other hand, the second block analysis, and the second regression model, including all of the aforementioned independent variables, was evaluated as significant $F(8, 174), = 2.17, p = .032$.

Together the variables explain 9.1% of the variance in GPA, reflecting a moderate prediction ($R^2 = .091, R = 0.30$). Therefore, we can assume that the model was significantly predicted by both, control and independent, variables.

This model also showed that certain IVs are not significant in predicting the outcome such as the following:

- Age $b^* = -0.86, t = -1.10, p = .273, 95\% \text{ CI } [-.21, .06]$
- Gender $b^* = -0.06, t = -0.72, p = .473, 95\% \text{ CI } [-.38, .18]$
- Social Media Multitasking (SMM) $b^* = 0.11, t = 1.43, p = .156, 95\% \text{ CI } [-.34, .21]$
- Social Media Usage for Academic Purposes (SMUL) $b^* = -0.44, t = -0.59, p = .559, 95\% \text{ CI } [-.26, .14]$
- Internet Sharing (IS) $b^* = -0.02, t = -0.25, p = .800, 95\% \text{ CI } [-.97, .07]$

- Media Sharing (MS) $b^* = -0.04$, $t = -0.56$, $p = .579$, 95% CI [-.09, .05]

Although the results of social media multitasking (SMM), social media usage for academic purposes (SMUL), and internet sharing (IS) are not deemed significant, they still suggest the same direction of the relationship with GPA, as in the work of Lau (2016).

Video Gaming, contrarily, $b^* = 0.25$, $t = 3.27$, $p = .001$, 95% CI [-20.03, .38], was a highly significant predictor of GPA. For every unit increase in the video gaming variable, GPA would also increase by 0.176. This, however, in the context of Czech university grading means, that the average grade is actually getting worse.

This result goes hand in hand with the findings of Lau (2016) in the initial source study.

A completely new finding, however, is a significant prediction of *video watching*, $b^* = -0.16$, $t = -2.04$, $p = .042$, 95% CI [-.15, .00]. In that case, according to the analysis, for every unit increase in video watching, the average grade would increase by .078. This perhaps suggests, that possibly some kind of video content could be beneficial for academic preparation.

For all these effects, other independent variables are assumed to be held constant.

Variables explained

The next part of the analysis will depict the relationships between each of the independent variables, and the only dependent one GPA, which serves as an indicator for academic performance.

		Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.154	.430		5.009	<.001	1.305	3.003
	Gender	-.103	.143	-.055	-.719	.473	-.384	.179
	Age	-.073	.067	-.086	-1.099	.273	-.205	.058
	SMM	.088	.061	.107	1.425	.156	-.034	.209
	SMUL	-.059	.101	-.044	-.585	.559	-.257	.140
	VG	.176	.054	.246	3.265	.001	.069	.282
	IS	-.011	.043	-.021	-.253	.800	-.096	.074
	MS	-.019	.035	-.044	-.556	.579	-.087	.049
	VW	-.078	.038	-.166	-2.046	.042	-.153	-.003

a. Dependent Variable: GPA

Table 9: Independent variable coefficients

The first thing to mention is the only dependent variable – GPA. This single item variable was conducted as a chart representing the grades according to the Czech university grading system, in which 1 is the best result and 4 is the worst. This is a major difference as opposed to traditional GPA measurements, where the higher the grade the better the results are.

↑Gender ↓GPA

The first tested variable in the analysis was a control variable gender. The relationship between gender and the GPA was overall negative, as can be seen in Figure 9. The gender variable was coded as 1 – Female, 2 – Male. This indicates that according to the research findings male participants would achieve an overall better GPA the female.

However, the overall dataset headcount has to be taken into account, in which (as seen in Figure 1) males are only accountable for 20.1 % of the overall respondents in the study. Therefore, given the fact that the research sample is too small, this relationship may be invalid. Overall, the findings are in direct contradiction with Lau’s research, where the females were most likely to have better GPA.

↑Age ↓GPA

The next tested control variable in the analysis was age. The relationship between age and GPA was overall negative, as can be seen in Figure 9. Age was coded as 1 – the youngest group and 4 – being the oldest group. According to the regression, the older the respondent, the better academic performance (GPA). This is also in contradiction with Lau, as in his research, the younger respondent usually tends to have better overall GPA results.

↑SMM ↑GPA

The first standard independent variable is social media multitasking. This variable has proven to be significant in the overall research, as Figure 9 suggests. SMM was coded with a Likert-type scale with 1 – strongly agree to 5 – strongly disagree. The relationship between social media multitasking has proven to be positive with GPA, therefore, the higher the amount of social media multitasking, the higher the GPA gets. Which in essence, is negative, as the higher grade means worse academic performance in the Czech Republic context. This result is exactly the same as the one in Lau's research.

↑SMUL ↓GPA

Social media usage for academic performance is another analyzed variable and this item also used the Likert-type scale for the measure. This variable is, according to the research, negative in relation to the GPA. Moreover, the more positively SMUL is valued by the respondents, the better (lower) the GPA received.

This variable has the same relation to GPA as in Lau's research.

↑VG ↑GPA

Video gaming, one of the significant variables, has been analyzed through a 1 – 10 scale, with one meaning “never” and ten “all the time”. This variable holds a mean value $M= 1.70$, therefore the majority of respondents play games only once a month maximum. This variable has been analyzed with a positive relation to GPA, therefore negative in

terms of the effect on academic performance and results. This result is in line with the findings of Lau as well.

↑IS ↓GPA

Internet searching variable has been also coded with the 1-10 scale and holds mean value $M= 6.16$, which is the highest of all the independent values with this scale. This means that on average users are researching things on the Internet once a day.

According to the findings from the analysis and Figure 9, the β is negative and therefore the relation to GPA as well. This suggests that the more respondents search online, the better grades they get. This result is in accordance with Lau's research findings as well.

↑MS ↓GPA

The media sharing independent variable has been set on a 1 – 10 scale, with an average mean value $M= 3.56$, therefore on average, the respondents share media around once a week. This variable is negative in terms of the β and thus the relation to GPA has the opposite effect. This means that the more respondents share on the internet, the lower (good) grade they get, which is contradictory to the findings in Lau's research.

↑VW ↓GPA

The last variable, video watching holds a mean value $M= 4.61$ on the 1 – 10 scale used, and therefore, the respondents watch videos online several times a week.

In regard to the analysis, video watching holds a negative β value and can therefore be considered as positive in nature towards the GPA. This means that with higher viewings, a better GPA occurs. These findings are the same as in Lau's hierarchical regression analysis, however, the significance differs highly.

According to the data above, the research model has proved to be reliable and significant. Out of the total of eight independent variables, only three have proved to be different in terms of direction from the source study performed by Lau in 2016. The first

two are the control variable of age and gender. These different results may be explained by the major difference in the respondent dataset composition and quantity.

The only standard independent variable differing from the source study is media sharing. As this analysis takes place in 2021, there could be a presumable link between the better relationship to certain online actions, such as media sharing, in terms of the COVID-19 pandemic.

Overall, out of the three hypotheses laid out in the source research, only two were found to be supported.

Hypotheses one and three were proven to be supported by the research model and data shown above.

- **Hypothesis 1:** Students who use social media more for nonacademic purposes perform less favorably academically.
- **Hypothesis 3:** Students who engage more in SMM perform less favorably academically.

Hypothesis two has not been supported by the research and data presented in the analysis.

- **Hypothesis 2:** Students who use social media more for academic purposes perform more favorably academically.

All of the results are in accordance with the research model of W. E. Lau.

3.4.4 Discussion

This analysis has set out to examine, to what extent and how exactly does social media usage, and social media multitasking influence the academic performance of students in universities. This research has been modeled after a research paper, created by W.E. Lau, submitted in 2016. Three hypotheses in total were formulated by Lau and afterward adapted for this study. These hypotheses were then consecutively tested with an online survey questionnaire in the same set of questions and the data collected from it. The overall sample of 184 respondents from Czech universities, has rendered almost exactly the same results as the initial source study.

With the help of controlling variables of gender and age, the overall findings were put together. It was found that social media usage for academic purposes (SMUL) does not significantly predict any changes in the overall GPA. In general, SMUL had an overall positive correlation with the impact on academic performance measured by GPA. These findings seemed to be identical to those presented by Lau.

Interestingly, social media usage for non-academic purposes (SMUNAP – consisted of VG, IS, MS, and VW) has been characterized as both positive and negative, with some variables being responsible for hindering good academic performance and overall grade and some showing the opposite. The variable especially significant in the negative case was video gaming. This result has been the same for this thesis research, as well as for Lau's study.

Another significantly negative predictor has been shown to be the independent variable of social media multitasking. According to the data, SMM has been proved to negatively predict the overall GPA and academic performance. This result has also been the same as the one in the source research, as well as in accordance with the previous literary review.

Contrary to the findings of several researchers (Lau, 2016; Richardson et. al, 2012; Copper, 2014 and others), the final results suggest, that difference between genders has been in favor of the male respondents, as opposed to the females. Even though Copper (2014) in her study has proven that there are both cognitive and non-cognitive factors responsible for gender differences in academic performance (in favor of the females), this research has rendered opposite results mainly due to one reason only – the highly imbalanced dataset.

As mentioned earlier, since the percentage of the respondent has been almost 80:20 in favor of females, they are therefore statistically more prone to exhibit academic deficiencies. For this reason only, the results in regard to gender should be rendered as insignificant or inconclusive.

As previously mentioned in the literature review and the appropriate chapter in the theoretical part (see 2.2) social media usage for non-academic purposes has proved to be in negative correlation with the academic performance. For the most part, both results from Lau's study and this one, are confirming these findings. The analysis has also determined one key element which is directly responsible for the declination, and that is video gaming.

Since the exact nature of the non-academic usage of SM was not a primary goal of the research, we cannot safely say, or determine any further details about how much time is allocated to these procrastinating activities in the respondent's lives. It would be however interesting to measure if, with a larger sample (the predominantly male one), the results would be reinforced and supported or not.

One item in the set, video viewing, has been identified as the significantly positively correlated variable from SMUNAP, in stronger values than in the case of Lau's. This is a new finding, however, it cannot be commented on in further detail, as there is not a necessary amount of info for doing so. Perhaps, in this case, video viewing has been adopted on a weekly basis to also watch education-related material. Another reasoning may be that during the COVID-19 pandemic, most of the students were forced to adopt distance learning, predominantly done through video lectures and other video content, in addition to the standard coursework. Perhaps this may be also one of the underlying factors of the increased significance of video watching in this analysis. However, a separate analysis focused on this topic solely would be needed in order to determine this truth.

The present analysis has also demonstrated, that SMUL has no highly significant or direct effect on the overall academic performance. Nevertheless, as shared in chapter 2.1, multiple studies are showing positive effects on student engagement in the lectures, better performance during classes, and overall higher contentment with the way classes and topics are presented (GreGory et al., 2014).

Overall, the neutral views towards this may be explained by the fact that not enough of the respondents are enrolled in universities or lectures, where social media would be used in a creative way and therefore bring them a feeling of interactivity.

Social media multitasking has been pointed out as one of the key negative variables in relation to academic performance. The student's inability to multitask effectively has been proven in multiple studies set in the academic environment. This finding is therefore in accordance with the previous learnings documenting the direct negatives of SMM on different cognitive functions, memory, and other also behavioral outcomes. According to Beuckles et al., (2020), media multitasking has been increasingly popular in the past

decade and raised a variety of concerns in the academic field. Therefore, the appropriate action would be to analyze this harmful element in a longer period of time and in detail, to combat its direct influence on several cognitive and non-cognitive tasks. An in-depth, extensive research would have to be done in order to observe and records detailed influence.

Overall, the analysis has provided a piece of clear evidence on some of the problematic factors of incorporating social media into the academic field. The study has established, that procrastination on social media (such as VG) a more so, social media multitasking, are the key variables responsible for detrimental influence on academic performance and GPA.

Future research should show, how may the negative effects be mitigated or at least moderated in order to eliminate this influence. In essence, since social media multitasking has been pointed out as the main factor, educators and also the students themselves, should adopt techniques on how to minimize its effects. For example, Rowe (2014) suggested, that universities should adopt certain guidelines when it comes to using technology and social media, as well as promote technological literacy and self-awareness in this context.

3.4.5 Limitations

There are of course multiple limitations to this hierarchical analysis, that should be addressed. First of all, one of the major limits is the nature of the dataset used. The probability sampling method used in this research has proved to be unfortunately ineffective in my case and the generalizability of most of the findings cannot be applied. Since the dataset was not representative enough in terms of gender, it had directly influenced some of the findings altogether. Because of this, a larger, more coherent sample of respondents should be used in any future research.

Secondly, another possible limitation to the research is the academic performance measurement itself, in the context of the Czech Republic. Since none of the universities are using standard GPA measurement as a tool to value academic performance, it has proven to be difficult to evaluate the performance in the truest sense. As every university is using different scaling on the grading system (for example Charles University has even different grading systems in terms of its faculties), a better approach for future research would be to

evaluate respondents which have a certain graded factor in common, such as same university subject or an exam.

4 Conclusion

The principal aim of this diploma thesis was to describe how social media and hyperconnectivity affect student productivity. In the theoretical part, my goal was to describe the conditions under which social media were created – what was the framework onto which they were “born”, what their original predecessors were, and what led to the development of these media into the form and power as we know them now. Secondly, it was also important to map out which of the numerous types of social media we have, are in fact relevant in terms of the context of this thesis.

Therefore, a brief description of all the relevant media (Facebook, Twitter, YouTube, and Wikipedia) has been included. This part of the diploma thesis has also set out to distinguish between the usage of social media in an academic and non-academic environment. Questions like – “What type of media do students or academic staff use in education and why those?” or “How are they used?” are answered by the division and description of individual media, in the context of their use in the academic environment. The overall explanation of their benefits is included with many examples pointing out the individual possible best practices used in the world. The possible pitfalls, like hyperconnectivity and academic procrastination, are of course mentioned as well.

The practical part of the thesis was comprised of a replication of a regressive hierarchical analysis. This analysis, based on a research paper by W.E. Lau, has set out to determine, whether there is a direct relationship between some of the previously mapped out online actions, such as social media usage in both academic and non-academic environments or social media multitasking. The analysis has been conducted via a quantitative method – a questionnaire survey. The conclusion was that there are certainly some factors that are contributing to the overall qualitative decrease in academic performance. Mainly in terms of two principal actions – video gaming and social media multitasking. Both of these actions have been rendered as bad in terms of the influence on grades and thus confirmed the research results from Lau’s source study.

Nevertheless, some positives have been determined as well, such as a surprisingly good relationship between video watching, media sharing, and its influence on GPA.

Since this thesis and analysis have been written in 2021, when the world has been experiencing multiple waves of the COVID-19 pandemic, it is necessary to ask, whether the positive relationship between the two aforementioned variables is perhaps influenced by the necessity of long-distance schooling and therefore the following necessity to mediate some of the negative effects which social media may bring, such as aforementioned procrastination or social media addiction.

Social media however still offers a large number of opportunities to make education more appealing and interactive (it does not have to be simply used for sharing updates or messaging, etc.). As mentioned in several chapters, if applied correctly, it can be beneficial, even in the classroom. With the long-distance schooling, which may be in some form used in the future from various reasons, perhaps the necessary change from frontal education to a remote one has been the push that both the students as well as educators might need to be able to use social media for the “educational” good of all of us.

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6 Abbreviations

SM	Social media
SNS	Social networking sites
UGC	User-generated content
BBS	Bulletin Board System
UI	User Interface
IRC	Internet Relay Chat
SMM	Social Media Multitasking
SMUL	Social Media Usage for Academic Purposes
VG	Video Gaming
IS	Internet Searching
MS	Media Sharing
VW	Video Watching
GPA	Grade Point Average
SMUNAP	Social Media Usage for Non-academic Purposes
SMS	Short Message Service

Attachment 1.

QUESTIONNAIRE:

DOTAZNÍKOVÉ ŠETŘENÍ

Vliv sociálních médií na performance a produktivitu studentů

(The influence of social media and hyperconnectivity on student's performance and productivity)

ČÁST I.

Obecné otázky

1. Pohlaví
 - Muž
 - Žena

2. Věk
 - 18–21 let
 - 22–24 let
 - 25–27 let
 - 28 a více let

3. Typ vysokoškolského studia
 - Bakalářské
 - Magisterské
 - Doktorské

4. Ročník studia
 - 1.
 - 2.
 - 3.
 - 4.
 - 5.
 - 6. a víc

5. Studijní obor
 - Humanitní vědy
 - Přírodní vědy
 - Technické zaměření
 - Umělecké zaměření
 - Ekonomie / Finance

6. Jaký byl Váš studijní průměr za poslední semestr (Myšleno jaký je cca vážený průměr Vašich studijních výsledků za posledního půl roku)?

- 1.0 – 1.50
- 1.51 – 2.0
- 2.0 – 2.50
- 2.51 a horší

ČÁST II. a

Využití sociálních médií pro akademické účely
(Social media usage for academic purposes)

7. Když používám sociální média pro akademické účely, mám pocit, že se učení stává více interaktivním

- Naprosto souhlasím
- Spíše souhlasím
- Neutrální
- Spíše nesouhlasím
- Naprosto nesouhlasím

8. Když k učení používám sociální média, online dotazování a diskuze s mými spolužáky mi pomáhá porozumět lépe např. zadaným materiálům k četbě

- Naprosto souhlasím
- Spíše souhlasím
- Neutrální
- Spíše nesouhlasím
- Naprosto nesouhlasím

9. Když k učení a akademické přípravě používám sociální média, jsem schopen/schopna získat rychlejší zpětnou vazbu od svých spolužáků

- Naprosto souhlasím
- Spíše souhlasím
- Neutrální
- Spíše nesouhlasím
- Naprosto nesouhlasím

10. Když k učení a akademické přípravě používám sociální média, jsem schopen/schopna získat rychlejší zpětnou vazbu od svého profesora / profesorky

- Naprosto souhlasím
- Spíše souhlasím
- Neutrální
- Spíše nesouhlasím
- Naprosto nesouhlasím

11. Když k učení a akademické přípravě používám sociální média, jsem schopen/schopna efektivně komunikovat

- Naprosto souhlasím
- Spíše souhlasím
- Neutrální
- Spíše nesouhlasím
- Naprosto nesouhlasím

12. Když používám sociální média, jsem schopen/schopna se spojit se spolužáky snadněji, než tváří v tvář

- Naprosto souhlasím
- Spíše souhlasím
- Neutrální
- Spíše nesouhlasím
- Naprosto nesouhlasím

13. Moje participace na hodinách se zvyšuje, když mi je umožněno přispívat k akademickým / rozebíraným tématům i prostřednictvím sociálních médií

- Naprosto souhlasím
- Spíše souhlasím
- Neutrální
- Spíše nesouhlasím
- Naprosto nesouhlasím

ČÁST II b.

Využití sociálních médií pro ne-akademické účely
(Social media usage for non-academic purposes)

14. V televizi sleduji seriály, filmy atd.

1 (nikdy)

2 (jednou za měsíc)

3 (několikrát za měsíc)

4 (jednou za týden)

5 (několikrát týdně)

6 (jednou denně)

7 (několikrát denně)

8 (jednou za hodinu)

9 (několikrát za hodinu)

10 (pořád)

15. Na počítači sleduji seriály, filmy atd.

16. Na počítači sleduji videa

17. Do počítače stahuji mediální soubory od jiných lidí

18. Na počítači sdílím své vlastní mediální soubory

19. Na internetu hledám zprávy za pomoci jakéhokoli zařízení
20. Na internetu hledám informace za pomoci jakéhokoli zařízení
21. Na internetu hledám videa za pomoci jakéhokoli zařízení
22. Na internetu hledám obrázky, nebo fotky za pomoci jakéhokoli zařízení

23. Hry na počítači, herní konzoli nebo smartphonu hraju pouze sám (např. aplikace v mobilu, The Sims atd. solo-playing)
24. Hry na počítači, herní konzoli nebo smartphonu hraju spolu s dalšími lidmi ve stejné místnosti (např. lan-party nebo multiplayer game na Playstationu)
25. Hry na počítači, herní konzoli nebo smartphonu hraju s ostatními lidmi online (např. MMORPG – WoW / LoL atd.)

ČÁST III.

Social Media Multitasking

26. Během učení multitaskuju na svých social media účtech.
 - Naprosto souhlasím
 - Spíše souhlasím
 - Neutrální
 - Spíše nesouhlasím
 - Naprosto nesouhlasím

27. Během toho, co se věnuji svým školním povinnostem, zůstávám na svých social media účtech online/aktivní.
 - Naprosto souhlasím
 - Spíše souhlasím
 - Neutrální
 - Spíše nesouhlasím
 - Naprosto nesouhlasím

28. Nekontroluji svůj účet na sociálních médiích, pokud pracuji na věcech do školy.
 - Naprosto souhlasím
 - Spíše souhlasím
 - Neutrální
 - Spíše nesouhlasím
 - Naprosto nesouhlasím