

The Role of Computer Games in Students' Paths of Digital Entertainment

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The aim of this article is to analyze digital entertainment of students from the perspective of computer games. The article is a continuation of research focused on the growing population of computer gamers and competition of different forms of digital entertainment by students. The following work stands for the initial part of more extended research and is focused only on a subset of conditions analyzed. As the baseline for the analysis, the authors used a division of day type characteristic such as workdays and non-working days. The analysis consists of 2 phases: analysis of daily behavior patterns and duration of digital gaming activities across different platforms, the second phase consists of an analysis of other forms of digital entertainment on top of digital gaming. A qualitative study was conducted with a predefined sample of students. The authors also indicated further research ideas to extend the usage of mobile technologies such as smartphones.

Keywords: e-gamers, digital entertainment, the role of computer games in entertainment.

Rola udziału studentów w grach komputerowych na tle innych rodzajów rozrywki cyfrowej

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Celem niniejszego artykułu jest analiza roli udziału studentów w grach komputerowych na tle innych rodzajów rozrywki cyfrowej. Artykuł stanowi kontynuację badań dotyczących rosnącej populacji graczy komputerowych oraz konkurencji ze strony różnych form rozrywki cyfrowej wśród studentów i jest wstępną częścią zamierzonych badań koncentrujących się na populacji studenckiej. Jako podstawę analizy autorzy zastosowali podział na dwa podstawowe rodzaje dni w tygodniu: dni robocze i dni wolne od pracy. Analiza składa się z dwóch faz: analizy codziennych zachowań i czasu trwania gier cyfrowych na różnych platformach cyfrowych oraz analizie wykorzystania gier komputerowych w stosunku do innych form rozrywki cyfrowej. Badanie jakościowe zostało przeprowadzone na określonej próbie studentów studiów wyższych. Autorzy wskazali również możliwe kierunki kontynuacji prac i rozszerzenia ich na technologie mobilne.

Słowa kluczowe: gracze komputerowi, rozrywki cyfrowe, rola gier komputerowych w rozrywce.

JEL: L81, L83, M15

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1. Introduction

Computer games are becoming a more and more important part of life of young generations. Their role as a way of spending time is competing with different activities such as watching TV/movies, listening to the radio/music, going to the cinema or just simply social media. This is the next part of research from a series related to the usage of computer games by representatives of the academic youth. As future customers with the income of above the average, they will be desired customers to spend money on hardware and ensure the survival of computer games. As future managers, they will make decisions about spending money on new projects from the area of computer games. Personal experience will influence their understanding of the phenomenon and potential of computer games for companies.

According to researchers, the global games market reached in 2018 \$137.9 billion value (a 10.9% increase over 2017), and respectively only the global mobile games market reached \$63.2 billion (a 12.8% increase over 2017) (Newzoo, 2018). Many companies in the digital entertainment industry, visions and reports indicate a change in the perception of what are their competitors. In a Netflix shareholder letter from the beginning 2019, we can find two important statements (TechCrunch, 2019):

- “We compete with (and lose to) Fortnite more than HBO” (Fortnite online Survival, battle royale game –authors’ comment),
- “There are thousands of competitors in this highly fragmented market vying to entertain consumers and low barriers to entry for those with great experiences”.

It is noticeable that Netflix, the leading OTT (over-the-top media services) company, respects the role of digital games as one of the major threats to their customers.

A rapid change and a growing role of mobile platforms for computer games are covered by different researchers (Basler & Mrázek, 2018; Brückner, Sato, Kurabayashi, & Waragai, 2018). Smartphones have changed dramatically the accessibility of games, and the idea of anytime and anywhere has influenced gaming. Also important in this case is the emotional aspect of the gaming process and how it influences the growing popularity of computer games (Chang, 2018; Hart, Piumsomboon, Lawrence, Lee, Smith, & Billingham, 2018; Bátfai, Papp, Besenczi, Bogacsovics, & Veres, 2018). On this basis, it is possible to analyze the phenomena of Fornite and a growing number of its imitators (GamesRadar+, 2019).

The future role of computer games in the life of current and upcoming generations of students is possible to identify in the digital life that teenagers live. In the US, “about nine in 10 teen boys and three-quarters of teen girls own or have access to a gaming console” (eMarketer, 2018). It shows that computer gaming has become one of the major influencing trends and a gaming console is the standard equipment of everyone.

The following research is focused on the digital life of students, in daily activities analyzed from various aspects.

2. Research Methodology

The analysis was divided in two parts:

- spending time on digital entertainment during standard working days (work/activities at the university/important duties),
- spending time on digital entertainment during free-of-workdays.

In the survey, there were thirty-eight questions covering daily time spent on activities used to analyze the above described conditions, presented in eight groups:

- playing games (by platform),
- photo activities,
- video activities,
- video streaming from games,
- watching movies/series,
- musical activities,
- listening to professionally recorded music,
- posting (social media).

The selection of activities listed above was prepared based on the direct interview (initial trial) with students of e-business specialization at master studies at the Faculty of Management, University of Warsaw, and followed by the an extended online survey published on the servers of the University of Warsaw Faculty of Management. The survey was carried out in October 2018 based on the convenience sampling method on selected students of bachelor, master and postgraduate degree. Respondents were selected from two universities: the University of Warsaw and the Vistula Academy of Finance and Business. The response ratio was 551 completed surveys out of 1032 people participating in the survey.

Sample characteristics:

- average age: 20.8 years
- 73.14% of women, 26.86% of men
- 39.02% of non-working, 30.85% of part-time working, 30.13% of full-time working students.
- 97.82% secondary education, 2.18% bachelor or above
- 35.21% coming from the city of over 100,000 residents, 30.67% from cities with 11–100 thousand, 34.12% from villages or towns up to 10,000.

3. Analysis and Discussion of Results

The first step of analysis was focused on daily time spent on playing games by platform: PC (Win/Mac/Linux), home console (Xbox, PS), portable console (Nintendo 3DS, PSP Go), mobile platform – smartphone

(Android/iOS), mobile platform – tablet (Android/iOS). The analysis was carried on in two aspects – free-of-work days and standard working days.

During working days (work/activities at the university/important duties), 71.51% of students play games on smartphones, 37.57% on PC, 19.42% on a home console, 18.15% on tablets and 4.36% on portable consoles.

During free-of-work days, 59.35% of students play games on smartphones, 35.03% on PC, 22.87% on a home console, 17.06% on tablets and 4.54% on portable consoles.

Based on the researchers' analysis, a difference in game playing patterns during standard working days and during free-of-work days has been noticed. Considering available time for this type of entertainment, respondents indicated spending less time on games available on smartphones than the other channels. The distribution of time spent on other platforms was more balanced (Table 1).

Daily time spent	PC (Win/Mac/Linux)	home console (Xbox, PS)	portable console (Nintendo 3DS, PSP Go)	mobile platform – smartphone (Android/iOS)	mobile platform – tablet (Android/iOS)
working days	37.57%	19.42%	4.36%	71.51%	18.15%
free-of-work days	35.03%	22.87%	4.54%	59.35%	17.06%

Tab. 1. General time spent on computer gaming divided into platforms and days. Source: Own study.

The most significant change of platform used concerns smartphones, where time spent on computer gaming during free-of-work days is more than 12% shorter than during workdays. This can indicate that during work hours students more often chose to access smartphones thanks to better remote availability rather than other platforms that tend to be more stationary.

Considering the use of home consoles, an increase in use was observed during off-work days, which might indicate that it might involve joint gaming in a given location as gamers have more free time and will so socialize.

Another interesting finding of this research is the distribution on time spent on computer gaming across different platforms in an hourly division. Herein, the authors will present only results of 2 leading platforms: smartphone and PC, other platforms considered in the research are not discussed as no significant changes were noticed.

During workdays, respondents indicated spending longer hours on playing games on smartphones (almost 6% indicated over 5 hours a day to play on smartphones during working days compared to less than 3% during days free of work for the same duration). Another average time spent on mobile gaming is that for both non-working and working days: 2.36% of respondents indicated the same duration of 4–5 hours a day playing

smartphone games. This can lead to the conclusion that respondents are not correctly balanced between work and relax times as they are engaged in activities that are seen as not beneficial. Further research is recommended to investigate the extensive amount of time spent on gaming during work hours and the possibility to convince users to spend time on other activities that are seen as more beneficial to employees and universities.

At the same time, the PC platform returned the following results:

- Time spent on playing during week days is slightly shorter than during weekend days.
- The majority of respondents (18.51%) indicated spending less than 1 hour playing PC games during workdays compared to a 10% decrease during non-working days, the same value remains for the duration of 1 to 2 hours a day, where answers are within the same range of 9%. The remaining answers indicate a similar change in time spent during workdays and non-working days, where a decrease in the use of PC games ranges 1–2% less than during workdays.

The general conclusion, comparing smartphone and PC usage, is that the most unchanged duration of playing that does not apply the day characteristic difference is 4–5 hours a day for smartphones and 1–2 hours for PC gaming. This is an interesting observation considering that other values follow the observed standard trend of an increase/decrease in time spent on computer gaming.

The next step of the research was to analyze computer game playing against other entertainment forms. The observations considered stretched time available for other forms of entertainment and relaxation within indicated day characteristics. The findings of the research are presented in Table II for non-working days and in Table III for working days.

The most popular form of entertainment is represented by photo activities, where the most popular is watching other people's photos (on Facebook/Instagram portals) for workdays – 95.83%. The next in the range are: listening to professionally recorded music – listening to free music (95.46%), reading other people's posts on a social network (93.83%), watching other people's videos (on Facebook/Instagram/Youtube portals) (93.28%).

The above findings highlight the use of smartphone technologies to use the content everywhere and every time.

The most popular form of entertainment is represented by listening to professionally recorded music – listening to free music (95.10%), the next in range is watching other people's photos (on Facebook/Instagram portals) – 93.28%, reading other people's posts on a social network (93.10%), watching other people's videos (on Facebook/Instagram/Youtube portals) (90.74%). The pattern indicated here shows that weekend time is more focused on professional music exposure but, in general, activities that are the most popular among respondents are similar for both day types characteristics.

Daily time spending	More than 5 hours	From 4 to less than 5 hours	From 3 to less than 4 hours	From 2 to less than 3 hours	From 1 to less than 2 hours	Less than 1 hour	I do not use this form of entertainment
playing games – mobile platform –smartphone (Android / iOS)	2.72%	2.36%	2.90%	7.44%	13.61%	30.31%	40.65%
photo activities – taking photos with a smartphone	1.27%	0.54%	1.45%	3.99%	17.79%	60.07%	14.88%
photo activities – posting photos of your authorship (on Facebook/Instagram portals)	1.27%	0.73%	0.54%	2.36%	5.44%	44.28%	45.37%
photo activities – watching other people’s photos (on Facebook/Instagram portals)	3.45%	3.09%	7.44%	19.42%	29.76%	30.13%	6.72%
video activities – watching other people’s videos (on Facebook/Instagram/ Youtube portals)	3.27%	3.09%	7.99%	19.96%	27.40%	29.04%	9.26%
watching movies/TV series – watching paid streaming movies/series (e.g. Netflix)	5.63%	3.81%	10.89%	19.60%	14.70%	8.71%	36.66%
music activities – listening to other people’s music (on Facebook/Youtube/ Last.fm portals)	5.44%	3.45%	6.72%	11.80%	21.60%	33.03%	17.97%
listening to professionally recorded music – listening to free music (e.g. Youtube)	7.26%	4.90%	9.44%	20.51%	30.85%	22.14%	4.90%
listening to professionally recorded music – listening to paid music streaming (e.g. Spotify)	6.72%	5.81%	8.17%	14.16%	15.06%	11.07%	39.02%
posting – reading other people’s posts on a social network (Facebook type)	2.72%	1.81%	5.08%	18.15%	27.59%	37.75%	6.90%
posting – reading a blog/ thematic channel/storyline of other people (e.g. on Twitter/Snapchat)	2.18%	2.00%	2.18%	7.26%	17.24%	32.49%	36.66%

Tab. 2. Spending time on digital entertainment during free-of-work days. Source: Own study.

Another interesting observation concerns for the duration of less than 1 hour a day, where over 60% of respondents indicate taking photos during days free of work and over 44% indicate posting their own photos on social media portals.

Daily time spending	More than 5 hours	From 4 to less than 5 hours	From 3 to less than 4 hours	From 2 to less than 3 hours	From 1 to less than 2 hours	Less than 1 hour	I do not use this form of entertainment
playing games – mobile platform – smartphone (Android/iOS)	5.81%	2.36%	4.54%	5.26%	11.62%	41.92%	28.49%
photo activities – taking photos with a smartphone	1.45%	0.36%	0.18%	1.81%	9.80%	76.23%	10.16%
photo activities – posting photos of your authorship (on Facebook/Instagram portals)	1.09%	0.54%	0.73%	1.09%	3.99%	54.81%	37.75%
photo activities – watching other people’s photos (on Facebook/Instagram portals)	3.27%	2.54%	6.17%	16.33%	34.12%	33.39%	4.17%
video activities – watching other people’s videos (on Facebook/Instagram/ Youtube portals)	3.27%	2.18%	5.63%	16.52%	33.58%	32.12%	6.72%
watching movies/TV series – watching paid streaming movies/series (e.g. Netflix)	2.90%	1.63%	5.44%	11.62%	24.86%	16.70%	36.84%
music activities – listening to other people’s music (on Facebook/Youtube/ Last.fm portals)	5.08%	3.27%	6.17%	15.43%	18.69%	35.57%	15.79%
listening to professionally recorded music – listening to free music (e.g. Youtube)	5.26%	4.36%	7.08%	15.61%	29.95%	33.21%	4.54%
listening to professionally recorded music – listening to paid music streaming (e.g. Spotify)	6.72%	3.45%	8.71%	13.43%	15.25%	13.25%	39.20%
posting – reading other people’s posts on a social network (Facebook type)	1.81%	1.63%	3.63%	10.89%	29.22%	46.64%	6.17%
posting – reading a blog/ thematic channel/storyline of other people (e.g. on Twitter/Snapchat)	1.45%	0.73%	1.63%	5.44%	13.97%	37.39%	39.38%

Tab. 3. Spending time on digital entertainment during standard working days. Source: Own study.

The activities are also reflected during workdays, where photo activities took the leadership with the share of over 76% for taking photos and almost 55% for posting photos.

This trend reflects the general observation noticed for game playing that higher usage of smartphone for different activities is during workdays. It might lead to the conclusion that young people use smartphones to support daily work activities or that this is related to the opportunity to interact with other people compared to the forms of entertainment during off-work days. Further research would be beneficial to discover the reason for such behavior.

4. Conclusion

The gaming industry is converting technologies for new customers to better attract them, e.g.: immersive gaming, secondary screens for gaming, augmented reality gaming or cloud gaming (Hongkiat, 2019). But also previous experiences of game players are influencing the future of the gaming industry in the area of direct payment for games (Polygon, 2019).

Digital entertainment is more often used on days when respondents are at work or university. It was observed that only the rating for the leading forms of entertainment changes the positions, whilst the leading candidates still remain on the shortlist.

The general conclusion, comparing smartphone and PC usage, is:

- Smartphone usage is higher (10%) during workdays compared to free-of-work days.
- The most unchanged duration of playing that does not apply the day characteristic difference is 4–5 hours a day for smartphones and 1–2 hours for PC gaming. This is an interesting observation, considering that other values follow the observed standard trend of an increase/decrease in time spent on computer gaming.

The trend of use of other forms of digital entertainment reflects the general observation noticed for game playing: higher usage of smartphones for different activities is during workdays.

The major finding for the comparison of other forms of digital entertainment follow the global trend of mobile technology popularity. This research also identified that smartphones are the leading form of entertainment for all the respondents and thanks to mobile technologies they can do their favorite activities everywhere and every time (see the indication of the most popular forms of entertainment other than computer gaming on workdays and off-work days, where the leading positions were taken by photo activities and listening to free professional music with a range of above 95% each).

The authors presented the results in the form of percentage data. It is planned to extend the analysis of various correlations between the variables.

Further research is recommended to investigate the extensive amount of time spent on gaming during work hours and the possibility to convince users to spend time on other activities that are seen as more beneficial to employees and universities.

Further research would be beneficial to discover the reason for a higher level of usage of smartphones during working days rather than during off-work days to make the smartphone use more beneficial for professional life of a person and company revenue. It would be also interesting to investigate similar patterns for people of ages of 40 and above.

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