REVIEW ARTICLE

E-sports: Definition and social implications

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Abstract

The development of video games can be traced back to the 80s of the last century. The final phase of the gaming industry's development brought with it another phenomenon — e-sport. "Electronic sport" presupposes playing video games in a competitive setting, with emphasis on increased "institutionalization" of gaming activity through the organization of e-sports teams and official international competitions. In order to define e-sports, it's important to note that not every activity of playing video games can be described as e-sport, but every e-sport is essentially playing video games. The interest for the phenomenon of electronic sport has increased over the past several years in all social sciences, including sociology. This paper aims to present several dimensions of the "electronic sport" phenomenon, review the existing research in this field, compare various aspects of e-sports and "traditional" sports, and discuss the formation of new subcultural group gathered around video games. The key task of this paper is to examine the distance between e-sports and "traditional" sport and frame the socio-economic scale of the phenomenon.

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Introduction

This paper analyses electronic sport, eSports, its social relevance, relevance within the reflection of traditional sports and the evolution of sport in the contemporary world. By analysing basic features of eSports question of eSports as a sport is being raised, and on the other hand, we are analysing the social implications that the process of development of eSports has for the society as a whole, with a particular focus on the younger population. The text is divided into two parts, the first part deals with sociological analysis of playing video games in the context of forming gaming culture, and also discusses the relationship between subcultural theories and gaming, creates a framework for further exploration of youth groups who form their identity around video games. Once we present the possibility of analysing gamers and games through the prism of subcultural theories, we will show what social implications "amateur" gaming and the appearance of "professional" eSports has. The second part of the text provides a discussion of one of the key issues regarding this topic, question of seeing eSports as a sport, especially within the traditional S definition of sport, and hence its influence on the possible redefinition of what we consider as sport in contemporary context. Data related to the popularity of eSports, measurements of the various psycho-motor skills of professional players, as well as potential impacts on health, are presented in both "amateur" and "professional" sense. This

topic is an extremely recent phenomenon, and so far, it has not been in the exaggerated focus of the scientific disciplines that have been invited to deal with it. This work is primarily an analysis of this phenomenon from the perspective of sociology, while any future scientific collaboration with scientists in the field of kinesiology can only strengthen the scope of research, just as it can offer a satisfactory descriptive framework of the phenomenon that has been developing during recent decades.

Introduction to subcultural theory

In this part of the text, we will offer a brief overview of sociological involvement in the phenomenon of youth subcultures. The idea is to layout the theoretical framework within which we can study young people who build their identity around playing video games by introducing basic concepts in this field of sociology of subcultures.

With the emergence of the first adolescent groups that have departed from forms of dominant culture with their visual, verbal, or generally symbolic presentation, there is also the tendency of scientific study of this phenomenon. Writings on this topic can be found in Chicago School of Urban Sociology, mostly in its methodological aspect. Monographic studies of the twenties and thirties of the last century were what defined the Chicago School and created the dominant field of interest of its authors (Čaldarović, 1985). The idea of most monographs was to show all the specificities of groups recognized within urban life, and the majority of what is often referred to as deviant is actually an indispensable part of the city's reality. The term "delinquent subculture", introduced in sociology by Albert Cohen (1955), features one of the roof models in research of young people in the 1950s. Based on the study of the socialization aspects and not the assumption that the delinquent must be characterized by a particular physical or psychological characteristic, the theory of "delinquent subculture" introduces terms such as group autonomy, reference frame and reference group (Perasović, 2001). Group autonomy denotes a situation where any pressure from the "outside" group is inadmissible, and the members treat only the informal pressure of the group as acceptable (Cohen, 1955). The reference framework and the reference group have the role of "orientation" according to which the individual makes decisions and whose value system is trying to act. By emphasizing the "generational conflict", we are actually talking about

a "conflict" in relation to parenting culture as opposed to what is then increasingly referred to as an adolescent lifestyle (Hebdrige, 1980).

Theory of labeling (Becker, 1968), speaking about "moral entrepreneurs" and "moral criminals", sets the framework within which we must understand the process of separating segregation within a culture in which "they" others are labeled as deviant. In the trace of Becker's theory of labeling Stanley Cohen elaborates the concept of "moral" panic (1972/80) (Perasović, 2001). Taking over Becker's terminology, he discovered "moral entrepreneurs" who, through mass media, receive public support in accounting with "deportees" and "outsiders".

Once we have positioned the subculture towards a broader social context, by at least briefly showing the problems of coexistence between dominant culture and subcultural groups, it is necessary to present another aspect in which the "action" of the subculture, we have already spoken, is manifested. The Birmingham School, and especially a few authors, are of great importance when referring to the definitions of the scientific definition of the subcultural concept, the relationship of subculture to the dominant culture, but equally to the analysis of the relationship between different styles. Phil Cohen (1972) analyzed the subculture on several levels, he observed that subcultural groups possess their "plastic part" within which the dress and music they prefer are contained, while there are also "infrastructure" definitions in the form of "slang" and "rituals" (Cohen, 1972). Subcultural conflict, according to Cohen, also takes place on two levels, one conflict with the "parent culture" discussed earlier, while others are related to the relationship between different youth groups.

With the changes in the subcultural scene, and generally the changes of society over time, the need to create new subcultural theories emerged. Commonly called "postsubcultural theories" have introduced some new concepts explaining the changed forms of subcultural manifestations (Krnić and Perasović, 2013). David Muggleton (1997), led by Baudrillar's theory of hyperrealism, argues that subcultural style has become a certain simulation, a copy without the origin, deprived of structural elements such as class, gender, ethnicity, and is isolated from social structure (Krnić, Perasović, 2013). He also states that "there is no reason for ideological engagement, but there is only a stylistic game to play" (Muggleton, 1997: 198, according to Krnić, Perasović, 2013). Because of the concise text we will stop here in this brief review of the historical

development and highlighting of the most important concepts within sociology of subculture, and outline the terms in the next chapter related to the playing of video games.

Gamers as subcultural actors

As we have mentioned in the previous chapter, we will briefly show how sociology of subculture can access the analysis of playing video games from the perspective of classical authors in this field, but also how we can sociologically see the emergence of a completely new concept in contemporary context - gaming culture.

Each subculture group has certain characteristics that are different from other groups, and thus from something we can call the mainstream. We will show, on an example of some elements of the subculture features that it is possible to talk about gamers in the context of a subculture. In support of our thesis, we emphasize two elements: verbal expression and ritual elements of subculture. We can say that gamers are inherent in a unique language, something that we can label as a slang, with the use of abbreviations or terms coming from the video games world, especially from multiplayer games. Usage of abbreviations for certain commands inside the game often spills into everyday life of individuals just as well as a "coded" language that speaks about a particular game or situation within the game. On the other hand, playing video games is a sort of ritual specific to this group, and existence of multiplayer options leads us to something new in the world of youth subcultures, which is the existence of cyber groups grouped around playing video games. Another important point when talking about gamers in the context of subcultural theories is labeling, or creating stereotypical patterns about members of a group. Cohen (1972) speaks of "moral panic" as a process of labeling a group in the eyes of the general public. Following the footsteps of the theory of stigmatization of smaller groups, the authors mentioned in the previous chapter pointed to stigmatization of "others" or "outsiders" within society. Therefore, Shaw (2010) concludes that some geek style has been correlated with video game culture (Shaw, 2010: 410). When we incorporate gaming into a subcultural theoretic framework, it is important to emphasize the existence of a "generation gap" between the members of the subculture and their parental culture. Diversity from the parental culture was greatly analyzed by Cohen (1972) in the context of subcultures.

Gaming culture

When speaking about gaming culture we must initially refer to the research conducted by Krolo et al. (2016) who created a typology of gamers in Croatia. Recalling Garry Crawford (2011: 47), the approaches to the investigated phenomenon are set out by asking four basic questions, "what types of people play video games", "what are socio-demographic characteristics of gamers", "which people are excluded (who do not play video games)" and "which video game are being played regarding styles and gaming groups" (according to Krolo et al., 2016). From these research questions, it is possible to conclude that the analysis of the phenomena of gaming culture is a subchapter by which we deeply analyze a specific social group, so at the same time we can talk about a specific gaming culture. It is important to note that gaming culture goes beyond the gaming subculture concept because the commercial gaming industry has embarked in the direction of capturing biggest market as possible, meaning that not every person who consumes video game content automatically belongs to the gaming subculture. In addition, when we talk about gaming culture, we are actually approaching the mainstream culture of today's technologically advanced and highly globalized world. Gaming is present in most media and numerous advertisers today, promoting entertainment related to computer gaming and the consumer component of the same data in the last decades of the twentieth century. As a summation of this part of the text, which implies a huge research field, we will offer Wagner's description of the era in which eSport was born, which he calls digital youth culture (Wagner, 2006). Chronologically, the concept of gaming culture had to be the starting point in development of eSports as a future gaming phenomenon in its competitive and economic fullness.

Some social implications of eSports phenomenon

The chapter on social implications of eSports will show few examples how the emergence of eSports already has a major impact on certain aspects of traditional sport, most notably through the prism of sports audiences, the form of sporting competitions, but also through creation of a "generation gap". With the emergence of eSports, a completely new potential market emerged, within which new and different sporting content consumers can be created. The shift

from television to the Internet as the dominant broadcast media in the 21st century has undeniably helped eSports access its target audience. Leading traditional forms of watching sporting competitions can be divided into several categories, watching sports by going to a sports event, reading sport-related media inscriptions, or tracking events by radio, television, or more recently via Internet streams. eSport combines all of them, with special attention given to Internet streams. As a result of the change in the media tracking form, there is a completely new field for research related to changes in the profile of the sport audience and its ritual expression, such as singing songs, choreographies etc. It is important to note that some clubs known in traditional sport (Panathinaikos, Valencia, Philadelphia 76ers etc.) set up their eSports team.

From these few examples of social implications of eSports, it is obvious that the analyzed phenomenon is being manifested in within several spheres of social life. Therefore, social science, in this case sociology of sports, is called to consider this phenomenon irrespective of the researcher value system or any of his positions towards eSports concept. eSport is certainly a controversial topic, but it is part of the reality we live in and as such should not be left out of the critical thinking within several scientific disciplines.

eSport: definition and relevance

If we describe "gaming" as an iceberg, the vast majority of players match the "underwater" unseen mass of the ice, while eSports is the considerably smaller part of ice above the water. The ratio of eSports players to "casual" players that compose the gaming culture is probably comparable to ratio of athletes that play traditional sport on top-level versus those that enjoy sport culture and/or recreational sports. Multiple authors report that scientific study of eSports phenomenon is at its "infancy" (Wagner, 2006; Polman et al., 2018), especially compared to number of scientific studies on gaming culture and video games (Polman et al., 2018). The question that remains, and can always be evoked is: why should social sciences study eSports at all?

The relevance of studying eSports is easiest to establish through economic sphere. "It is anticipated that by 2020 this industry's worth will exceed 23.5 billion USD" (Polman et al., 2018:3).

The massive scale of the reach that eSports has on audience can be illustrated with number of viewers, a relevant factor directly connected to eSports consumption and advertising.

Currently, around 385 million people watch eSport (either online or in stadiums) worldwide and this is predicted to grow to 589 million by 2020 (Polman et al., 2018:3). Hollist noted that in 2014 more than 40,000 people were attending certain eSports championships (Hollist, 2015 as cited in Holden et al., 2017). The number of consumers participating or following eSpors is rapidly growing. In 2013 game League of Legends brought in the 2nd highest number of viewers, 27 million, beating every sporting event (including NBA finals) except for the Super Bowl.

Now that relevance has been illustrated it's time to define eSports. There seems to be no generally accepted definition of eSports (Wagner, 2006: 2). The simplest definition of eSports can be: "competitive gaming", but that's not very helpful in defining subject of studies. Therefore "playing games in a competitive manner" has to be elaborated. A lot of games can be played competitively and that alone is usually not enough to call something sport. "eSports is formally defined as an area of sport activities in which people develop and train mental of physical abilities in the use of information and communication technologies" (Wagner, 2007 as cited in Seo, Jung, 2014:2). The games they play also differ from popular games played casually. While games that we include in "gaming culture" (or casual play) usually consist of some story or narrative in which players can immerse and enjoy, the competitive eSports games are usually story-less and don't offer and escapist experiences. eSports games are designed and usually continuously improved to provide the best environment where competitors can compete based on their skill - called "mechanics" in eSports jargon (Ferrari, 2013).

In order to continue it's necessary to briefly explain what games are most played in eSports: moba, fps and rts. All three mentioned game genres are abbreviations that explain details about the type of game. Moba stands for "Multiplayer Online Battle Arena" and its genre with highest prize money pools and largest number of audiences. Example games for this genre are Dota2 and League of Legends. The game is played in teams of 5, where players through different roles, mechanics and teamwork try to defeat opponents "protected structure" while defending their own at the same time. "During the games players can

buy different items for their heroes to make them more powerful" (Laakkonen, 2014). Abbreviation fps stands for "First Person Shooter" and it's probably layman's first though when perceiving eSports. Example game is Counter Strike: Global offensive. Competitive play in Counter Strike is also played in teams of 5, where a team has to defeat opponent in military-styled point-of-view combat. Rts stands for "Real Time Strategy" and most popular in competitive gaming is game Starcraft2, game most popular in South Korea. Although it can be played in teams, in most competitive tournaments rts are played as one-on-one matches. In this genre each player has a parallel control of multiple units (covering offensive units, production units, scouting units, etc.) and through tactic and skill defeat opponent's forces. Each of mentioned genres has different skill requirements so competitive players rarely change games, and almost never genres.

Is it sport?

The relation between eSports and traditional sport is continuously scrutinized, and debate whether eSports should be called sport is ongoing. The reasons why would eSports even be connected to traditional sports come from large number of similarities. Kane and Spradley wrote that competitive play of video games closely resembles sports competitions (Kane, Spradely, 2017:1). We can easily use sport jargon to describe eSports; phrases like player, team, match, tactic, offense, defense, practice, skill, and others are frequently in use. Moreover, "competitive video gamers start to demonstrate the same athletic properties as traditional sports athletes" (Kane, Spradely, 2017:1). In order to further investigate that thesis, we need to return to definition of sport.

There are multiple definitions of sport. Depending on who is defining it, sport definitions tend to differ through stressing of different factors.

One of the often-used definition is Oxford English Dictionary definition, "An activity involving physical exertion and skill in which an individual or team competes against another or others for entertainment". In order to demonstrate the resemblance of eSport to traditional sport this definition can be disassembled into three parts: (i) to demonstrate physical exertion; (ii) to demonstrate skill; and (iii) team competition in entertainment purposes.

(i) Gaming is often described as sedentary and relaxing activity, so lack of "physical exertion" is usually the strongest argument of rejecting the recognition of eSport as sport. Contrary to popular opinion, there is evidence that eSports athletes exhibit signs that could be considered physical exertion. Aadahl, Kjaer and Jorgensen (2007) state that "absolute intensity may also be expressed as a multiple of an individual's basal metabolic rate (MET=metabolic equivalent)" (Aadahl et al. 2007:403). "Additionally, the oxygen levels (VO2) can be used; a moderate physical activity would have a 40%-60% VO2 reserve and/or 4.6 MET'a (Stroud, Amonette ¸Dupler, 2010 as cited in Kane, Spradely, 2017). So, if MET is an indicator of exercise intensity, a connection can be made how MET is affected when playing video games (Kane, Spradely, 2017:2). Bronner, Pinsker and Noah (2013) showed that MET's raised between 4-9 while participating in video games that involved dancing (Bronner et al., 2013), while "Stroud et al., (2010) managed to get their participants VO2 and MET at a low to moderate activity level by standing and shaking Nintendo Wii controllers" (Stroud et al., 2010 as cited in Kane, Spradely, 2017).

Rudolf et al. (2016) used cortisol levels to compare eSports players to the top athletes in other sports. "Bearing in mind small sample size of the study, the analysis of the stress hormone cortisol and the hearth rates of eSports players points at the existence of acute stress during competitions. While their level of cortisol during competitions is comparable to the one of racing drivers, their average heart rate during competitions is over 100 beats per minute with peaks of up to 160 to 180 beats per minute." (Rudolf et al., 2016 as cited in Hallmann, Giel, 2017:2). Concluding from listed evidence eSport meets the criterion of physical exertion.

(ii) Defining skill is as important as physical exertion, if not more. The fact that it's skill that defines who wins and who loses separates sport from lottery games or games where luck determines winner. Games where no skill is needed do not include the possibility to increase win rate by practicing which is fundamentally different from sport legacy (for example coin tossing involves no skill). "In competitive gaming, the skilled players dominate people that play for fun. In eSport there is a clear divide in win – loss record between players that are considered professionals and those that are not" (Kane, Spradely, 2017:2). In an interview with Ingo Forbose, a researcher from German Sports University he said that "the eSports athletes achieve up to 400

movements on the keyboard and the mouse per minute, four times as much as the average person. The whole thing is asymmetrical because both hands are being moved at the same time and various parts of the brain are also being used at the same time. This is a level of strain that the scientist had never observed in any other sport, not even in table-tennis players, who require a high level of hand-eye coordination." (Pimenta, 2017). Furthermore, during one of the pre-game shows, ELEAGUE brought up a comparison of players' visual reaction between top-level eSports athletes and top-level traditional sport athletes. With caution, because the methodology isn't presented in the media presentation it can still be used to illustrate the eSports skills. ELEAGUE reported that Counter Strike athletes had average visual reaction speed of 287 milliseconds. In comparison, NFL average was 309, MLB average had 317, NBA average was 279 milliseconds. Only traditional athletes that were faster were NHL goalies with 255, and top 1% of MLB players who scored 281 milliseconds[1].

(iii) The third part of the definition is team competition for entertainment. Casual "gaming" that makes gaming culture is in eSports transformed into competition with organized tournaments offering prize money, strict rules, audience, live streaming and other features that resemble traditional sports entertainment. "eSports are broadcasted on ESPN in the U. S. and various networks around the world. Special eSports arenas have been constructed to host the events" (Kane, Spradely, 2017) moreover, there has been cases of hosting eSports competitions on football stadiums and filling them to full capacity.

But accepting eSports in the same category as sport is not without its concerns. If, for example, we take another definition of sport – a definition that puts emphasis on the "wellbeing" of sport, new arguments arise. As an antithesis to above proposed thesis, Hallmann and Geil report: "According to the Council of Europe's European Sport Charter originally adopted in 1992 and revisited in 2001, sport 'means all forms of physical activity which, through casual or organized participation, aim at expressing or improving physical fitness and mental wellbeing, forming social relationships or obtaining results in competition at all levels' (Council of Europe, 2001 as cited in Hallman, Geil, 2017:2). So, what's the juxtaposition of eSports and health?

Health and eSport

The importance of health in eSports is not forgotten in contemporary papers. Considering the possible impact on large audience the enormous potential of eSports attracts scientist. Even though eSports does demonstrate some qualities that place it in the definition of sport, it's still a sedentary and in most cases unhealthy activity. "Lack of physical activity and sitting too much is a worldwide problem, and has been shown to have detrimental physical, psychosocial and cognitive consequences and is one of the most important public health concerns with increasing individual, societal and economic cost (Ding et al., 2016 as cited in Polman et al., 2018:5). For that reason, it is very important to stress that we do not suggest that eSports activity can or should be used as replacement for exercise, movement or traditional sport. That standpoint is also backed by Hilvoorde and Pot (2016) who suggest to omit eSports from sport education and physical education in schools (Hilvoorde, Pot, 2016:12).

Both the effect and the potential of eSports in improving health comes from two sources: the eSports activity itself and the effect that eSports produces because of its massive scale.

The eSports activity itself refers to the health of participants that play eSports competitively. E-athletes, as they are often called in media, differ from the vast majority of eSports consumers in the attention they provide to their body. The trend of using fitness as a way to produce better results go back only 10 years. Since the overall level of game mechanics (or skill as we called it) increased over the years, top-level competitors started to score similar results; and in that new hyper-competitive arena, every variable is an important determinant of winning or losing. Some professional teams started taking care of their bodies, included mandatory workout; reduced time spent in front of the screen and the result was transferred to their in-game performance. Polman et al. (2018) write: "similar to traditional sport, to excel at the highest level in eSport it is likely to be associated with being fit and healthy. If this is the case, strategies might be developed to help aspiring eSport athletes to develop "eSport fitness". It is probable that eSport athletes' fitness will vary during

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https://www.reddit.com/r/GlobalOffensive/comments/90ztdc/player_reaction_times_relative_to_major_sports/ (15.5.2019)

its development and increase with eSport's professionalization" (Polman et al., 2008:5). Unfortunately, eSport did not attract enough attention of medical science and kinesiology that could help develop a suitable set of knowledge on how to protect e-athletes, prevent injuries and prolong career length. One of the biggest problems in battling effects of unhealthy lifestyle is the fact that all those gamers that aspire to become eSports athletes, follow the role model of current top-level professionals in the mechanics (skill), but do not adopt body care and healthy lifestyle that professionals promote. The reason is simply that skill (mechanics) is far stronger predictor of winning in lower leagues. That brings us to the second potential of eSports – potential through its massive scale.

eSport can be used as a media to convey a message about lifestyle change to the massively perceived unhealthy sedentary gaming consumers. "Video game and eSport developers have been consistently applying psychological principles to their designs in order to 'hook' players to their games. These or other strategies (e.g., priming) could also be used to initiate and maintain health behavior change when designing eSport games in the future." (Polman et al., 2018). Some of that behavior can already be observed through body-image requirements that sponsors put on e-athletes. "A concrete example of the active construction of the male eSporting body comes from Michael Kane, who describes the difficulty of building a Counter-Strike team that couples in-game skill and the right "look" for advertisers and sponsors" (Kane, 2008: 185-188 as cited in Ferrari, 2013:8).

Conclusion

There are many different ways to look at the phenomenon of playing video games, gaming culture or its competitive versions - e-sports. Sociological analysis offered us the ability to open questions related to all three aspects by positioning them within a modern society. It is undisputed that e-sports is a controversial issue, but it also represents one aspect of reality we live in. By introducing theories from the domain of sociology of subcultures, we tried to position gamers within subcultural patterns and thus opened the possibility for further work on this subject. On the other hand, the notion of gaming culture is often perceived one-dimensionally as an entertainment for young people, but it contains several different layers of complexity, economic

aspects, media presentation, and its symbolic manifestations.

Question whether eSports is (or should be) considered as sport is still relevant because it evokes disciplines and sciences already familiar with studying traditional sport, to include eSports in their field of interest. We have demonstrated that there are reasons to treat eSport as "real" sport, and potential of that approach lies in enormous audience that gaming culture and eSport provide. The lack of clarity on connection between health and eSport is probably the most serious obstacle that lies in front of full inclusion of eSport into fields of scientific interest.

E-athletes face a lot of health and performance issues, and even though it's economically one of the fastest growing industries, kinesiology, medicine, sociology and other sciences lag behind in recognition and inclusion of eSport in their fields of interests. It's evident that eSport lacks specific kinds of knowledge that can improve performance of players, avoid injuries, reduce burnout and prolong average career length. In other words, eSport lacks the type of knowledge that mentioned sciences provide to traditional sport for decades, and this paper aims to emphasize the importance of putting eSports on the horizon of scientific interest.

eSports offers a unique chance to reach the most vulnerable group facing sedentary lifestyle – children and adolescents – and change some health-related lifestyle. Polman et al. state that "most of interventions to make children and adolescents more active have failed" (Poleman et al., 2018:7), so perhaps it's time to give eSport scientific interest that matches its economic impact.

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