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Articles (Theme)

DIGITAL GAMES INDUSTRY AND GAME DEVELOPERS IN TURKEY: PROBLEMS AND POSSIBILITIES

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Abstract

This study aims to understand the games industry's problems in Turkey and the relation of those problems with game developers, their working practices and the ecosystem. Adopting an ethnographic approach, in-depth interviews were conducted with 20 game developers, who work in digital games industry, mostly in one of the most important creative clustering examples in Turkey, METU Teknokent. According to the findings of the field research, main problems are defined as the lack of know-how and human capital. It is understood that those problems aggravate adverse working conditions for game developers by causing working without getting paid or underpaid and the self-teaching process that generates excessive working hours. In this regard, the potentiality of creating a culture in the game ecosystem based on solidarity, collective learning and sharing information is argued to improve Turkey's games industry and game developers' working conditions.

Key Terms

digital game, games industry, culture, ecosystem, creative clusters

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TÜRKİYE'DE DİJİTAL OYUN ENDÜSTRİSİ VE OYUN GELİŞTİRİCİLER: PROBLEMLER VE OLANAKLAR

Öz

Çalışmada, Türkiye'deki dijital oyun endüstrisinin problemlerini ve bunların oyun geliştiriciler, çalışma pratikleri ve ekosistem ile ilişkisini anlamak amaçlanmaktadır. Etnografik bir yaklaşım benimsenerek, çoğunlukla Türkiye'deki yaratıcı kümelenmelerin en önemli örneklerinden biri olan ODTÜ Teknokent'te olmak üzere dijital oyun endüstrisinde çalışan 20 oyun geliştirici ile derinlemesine görüşmeler gerçekleştirilmiştir. Saha araştırmasının bulgularına göre temel problemler, insan sermayesinin ve yordam bilgisinin eksikliği olarak tanımlanmıştır. Bu problemlerin, ücretsiz ya da düşük ücretli çalışmaya ve uzun çalışma saatlerine yol açan kendi kendine öğrenme sürecine neden olarak, olumsuz çalışma koşullarını derinleştirdiği anlaşılmaktadır. Bu bağlamda, Türkiye'de oyun endüstrisinin ve oyun geliştiricilerinin çalışma koşullarının geliştirilmesi için, oyun ekosisteminde kolektif öğrenme, bilgi paylaşımı ve dayanışmaya dayalı bir kültür yaratılmasının olanakları tartışılmaktadır.

Anahtar Terimler

dijital oyun, oyun endüstrisi, kültür, ekosistem, yaratıcı kümeler

Digital Games Industry

Digital games or video games can broadly be defined as "any forms of computer-based entertainment software, either textual or image-based, using any electronic platform such as personal computers or consoles and involving one or multiple players in a physical or networked environment" (Frasca, 2001, p. 4). With the development and expansion of communication technologies, digital games are increasingly diversifying and spreading to a wider audience. Consequently, digital games industry is globally one of the fastest growing creative industries although it's only 40 years old. In developed countries, digital games industry is considered as a high revenue industry and takes attention from many investors and public funds. Owing to the technological developments and hardware innovations, digital games market and its sphere of impact is growing (Ankara Kalkınma Ajansı, 2016, p. 8). The games market research company Newzoo projects that there are 30.8 million gamers in Turkey and by June 2018, Turkey's total revenue is \$878

million which is higher than the estimated numbers¹. Turkey also has a significant growth potential in digital games industry which is expected to be the biggest and the most valuable sector of the entertainment industry in the foreseeable future, yet, digital games industry in Turkey is still in its infancy (Kepenek, 2018, p. 652).

The economic interest, investments and incentives on digital games have begun to emerge in Turkey around 2008 and accelerated after 2010. For example, the Animation Technologies and Game Development Center (ATOM) was established in 2008 with the aim of supporting entrepreneurial activities and training a highly skilled workforce for games industry (Kepenek, 2018, p. 661). Also, non-governmental organizations like Oyunder and Turkey Game Developers Association (TOGED) started to be a part of policy-making and directing the perception of digital games. Ministry of Development included games industry among the primary sectors to improve Turkey's competitive strength according to 2015-2018 Information Society Strategies and Course of Action (Bilgi Toplumu Dairesi, 2015, p. 91). The cultural visibility of games and the industry have increased in Turkey by being a part of international events like Global Game Jam, Gamescom or fairs like GameX and GIST. Besides the increased visibility, new undergraduate and graduate programs for digital games in various universities contributed to catching attention of young generation for a potential career in the games industry, indicate young generation's interest in working in digital games industry (Binark et al., 2018, p. 4).

Digital games industry is considered as a creative industry due to its definition and character. Although there is not any single, agreed-upon definition for creative industries, consistent with different definitions or criteria², four indicators can be aligned for both understanding the games industry's essence and why it is a creative industry: (1) digital games industry is continuously changing and developing due to its most effective component, technological developments; (2) digital games as the output of the industry, are protected by intellectual property rights; (3) while digital games are shaping culture, they are also shaped by it and lastly, (4) the production process includes creativity and talent in different levels or dimensions. Those four indicators are also guiding us to think about various components of digital games industry, such as

¹ https://newzoo.com/insights/rankings/top-100-countries-by-game-revenues/

² The most common definitions of creative industries are made by NESTA (National Endowment for Science, Technology and the Arts), DCMS (Department of Culture, Media and Sport) and The Work Foundation. Brief information can be reached on their organizational websites.

information and communication technologies, policymakers, distribution channels, investors, game developers, artists or fields like game companies or clusters.

While analyzing the games industry and its components in the context of creative industries, we should keep in mind that the discourse of creativity and creative industries today, are adapted to neoliberal principles such as flexibility, risk taking, entrepreneurship, insecurity, or individualization. For example, flexible working hours, flat organizational structures, short-term, project-based hiring are common in creative industries including the games industry. The most important point is, those neoliberal principles are not just praised for workforce, they also refer to a specific subjectivity that transform our forms of existence. Richard Sennett (2013, p. 9), for instance, underlines that the "emphasis on flexibility is changing the very meaning of work, and so the words we use for it". It is claimed that flexibility which emphasizes the risk and has an impact on personal character, gives people more freedom but in fact, it is a part of new forms of control, which are hard to understand (Sennett, 2013, p. 10). In this context, the importance of critical field studies is revealed in order to understand the affiliation between the games industry and its components.

In Turkey, the academic interest in digital games has increased in the last years. Different disciplines such as Educational Science, Communication Science, Engineering or Fine Arts are contributing to digital games literature. A recent study (Binark et al., 2018, p. 9), shows that, excluding engineering, design or marketing, digital games are mostly studied in the context of their potential harms, content of violence and the effects on children. Nonetheless, there has been less academic interest focusing on gaming as an industry and game developers in Turkey (for contributive studies, see Binark et al. 2009; Binark and Bayraktutan-Sütçü 2008; Tüker et al. 2015; Bulut 2015; Kepenek 2018).

Consistently, compared to games and their contents, game developers' experiences and thoughts are rarely the focus of researches. In my opinion, focusing on people's experiences and thoughts is more important especially when it comes to Turkey's games industry since the game developers are the ones who should designate its future and the ecosystem which is in its infancy and still growing not only economically but also culturally. Digital game ecosystem defines a specific work environment, work culture, conditions and a group of people who share similar backgrounds, values, goals and dreams. This makes the people in the game ecosystem, what they think and why, how they feel about the job, valuable for a research.

This paper³ thereby, while adopting an ethnographic and interpretative approach, tries to understand digital game developers' thoughts about the problems of Turkey's games industry and how they relate to those problems, their working practices and the ecosystem. For this purpose, I made in-depth interviews with 20 people who work in the digital games industry or part of the digital game ecosystem in Turkey and made observations in one of the most important creative clusters in Turkey, METU (Middle East Technical University) Teknokent which is also the field of this research. One of these participants is the founder of a game company in Istanbul while another is working as a freelancer and a part of the community. Other 18 participants are working in eight different game companies located in METU Teknokent. Participants of this study, who are between 24-47 ages and four of whom are women, define themselves with different titles such as game developer, designer, 3d, 2d or concept artists, game tester, founder, manager, computer or software engineer, CEO, CTO or entrepreneur. In order to keep them anonymous, in this study I call them all as game developers⁴. I spent 2 months for in-depth interviews in which I used snowball sampling technique to reach out the participants, and almost a year for observation by participating different professional or leisure events or sometimes by just being in the field.

The Problems of Games Industry in Turkey

Game developers, who participated in this study, define Turkey's game industry's main problems as the lack of know-how and human capital. Except for the insufficient investments and grants, developers agreed on those two problems that all suffered from. Yet, this is not the first research that identifies those problems. Ankara Development Agency's *Digital Game Industry Report* in 2016 revealed those essential problems of games industry. Another research, *Entrepreneurial Mindset in Video Gaming Sector: Evidence From Turkey*, by Emek Barış Kepenek (2018), refers to same two industrial problems among others, as the lack of skilled workforce.

I expect this study's contribution to be revealing the relation of those problems with game developers, their working practices and the game ecosystem rather than

³ This paper is generated from my ongoing PhD. thesis in Ankara University, Faculty of Communication.

⁴ The community of games industry in METU Teknokent is not very large and since most of the people working in there know each other, pointing out the participants' job titles would be a huge risk of revealing their identity. For that reason, I use "game developer" term in awareness of it is not fully inclusive or an adopted job title by every participant.

defining them, regarding developers' own experiences and thoughts. Thus, before all else, some of the participants' thoughts about the problems of Turkey's games industry are stated below:

Participant 1: It is going good but there is no "know-how"; what is game, how it is done etc. So, for now, "good" is all I can say.

Participant 20: I think, in Turkey, the biggest problem of games industry is human capital. Today, if 10 people would come who are like we want, we would hire them all, but of course not at the same time, otherwise, there would be a chaos. Time is needed for adaptation. Almost every company is in this position. If there would be a good employee, all will hire. So, the biggest problem is human capital.

In creative industries, clustering is one of the most important strategies to cope with these problems. As a result of internationally widespread creative industry policies in the first decade of 21th century, the creative cluster phenomenon has expeaded (Hartley et al., 2013, p. 17). Aforementioned pre-incubation center, ATOM is located in Ankara, METU Teknokent, where game companies especially positioned and formed a natural cluster in (Ankara Kalkınma Ajansı, 2016, p. 36). The clustering in Teknokent, combined with the city's advantage of being the capital, proximity to government grants and the universities foremost METU and Hacettepe; is very important for digital game ecosystem and an effective research field. In Ankara Development Agency's report (2016, p. 56), it is stated that Ankara is the most important center in Turkey for games industry, considering the sector's position in Turkey. ATOM plays a significant role in this since it strengthens the communication and interaction between game developers in the industry by training many developers and being a center of innovations, events, education or projects about gaming.

However, as it is understood, these are insufficient to solve the lack of know-how and human capital problems which are strongly related to each other and as it is mentioned by many participants:

Participant 5: Well, yes ATOM was an incubator providing training for game development. However, the bigger firms did nothing. These firms have already known about the game development, that's why they did not have any aim to initiate a training program. Although the gaming sector in Turkey gained a footing, there is no know-how in the sector for the junior

employees or freshmen. We did not know how we are going to handle the projects, but we believed that we could achieve big success. Then we designed several projects, which are almost impossible to make in terms of our human resource and experience.

Interviewees stated that the lack of know-how has been the main obstacle for developing digital games since 2008, when the games industry was just burgeoning. Since then, those developers are mostly trying to cope with this problem by themselves by doing researches, watching tutorials, attending courses, trying, failing and trying again until they find the solution. This, I define as a self-teaching process, is the main coping mechanism of digital game developers with the know-how problem individually.

Participant 4: We learned much in ATOM when we came, but what we learned in ATOM, we didn't learn from ATOM itself. It was us learning by doing research. ATOM offered an excuse to do this job. Because everyone around you is developing games. You ask a question to someone, learn something from another, you do research... I mean, you complete a path of 10 years in one year, if there is an ecosystem. Because you can ask around many people about their experiences.

According to participants' thoughts and my observations, the most important contribution of ATOM to Turkey's games industry is creating a community by bringing people who share similar goals and dreams together. From this perspective, the most important function of ATOM was creating a game developers' community, by not just bringing them together physically but also by creating a culture for digital game ecosystem in Turkey. Creating a culture based on sharing information and experiences, which is essential for game development, is leading the second coping mechanism; cooperation and solidarity. So, we can define the lack of know-how and human capital as ongoing essential problems for digital games industry in Turkey and there are two coping mechanisms for developers and the game ecosystem in Turkey's games industry; a problematic self-teaching process and solidarity that has its own boundaries.

Self-teaching Process

Whether they came from different sectors or started a career in the games industry through attending ATOM, game developers must learn how to develop a game mostly through self-teaching. Thus, they spend a lot of time to educate themselves, search for

the answers and gain know-how knowledge by watching online tutorials, attending courses or learning by the trial-failure method.

After the usual eight or nine working hours spent in the offices, game developers continue self-teaching process at home or in the office. This means they spent approximately 11 hours a day to work, on the computer. In other words, in addition to usual working hours in the office, developers work approximately two or three extra hours, voluntarily, without getting paid, to learn how to do the job or improve their skills.

Participant 3: The process is full of sleepless days for me. Watching tutorials is so hard; I think that videos need to be watched from beginning to end. It is impossible to run it forward or skip some parts of the video, because all the actions that are missed or not learned very well cause a waste of time. Hence, tutorials need to be watched fully. Watching them is a job, a lesson; that's why the watching process is hard.

A few game developers even mentioned that the main reason for enrolling a graduate programme is to discipline, push and motivate themselves to work harder. Interestingly, participants generally do not complain about the time, money or the effort they spent on self-teaching. On the contrary, they usually say this is a joyful process:

Participant 11: It is hard but self-development itself is so hard. For example, after nine hours of a long workday, it is too difficult to find a motivation for studying on the thesis or learning about new updates on programming. (...) From my point of view, learning new information and self-development is difficult but also full of joy. It is like learning a new language, that I also want to but can't because I don't have any time.

The main reason why developers' not complaining about excessive and intense working and finding the self-teaching process joyful is, they believe that it is actually an investment for developing not just their skills and knowledge but more importantly their own selves. Self-development functions as one of the tools used to construct confirming self-development subjects who excessively try to cope with their insecure and precarious⁵

⁵ In this study, by "the game developers' precarious working and living conditions", mainly I refer to the takeover of life by work, extra-ordinary long working hours, extension of work across different spaces, the blurring of work and non-work time, passionate attachment to the work, informal workplaces and an attitudinal mindset that is a blend of bohemianism and entrepreneurialism (Gill and Pratt, 2008, p. 14). For similar precarious labor conditions in another creative industry, Turkey's soap opera industry, see also Bulut, 2016. Also see Yücesan-Özdemir, 2014 for broad explanation including different types of precarity.

working and living conditions by continuously "developing" themselves (Kim, 2017, p. 7).

Most of the game developers do not have a hobby or time for other non-work activities except occasionally going out with friends to socialize. When I asked, "what else do you do except work?", Participant 13 answered my question confidently and quickly: "I work". Similarly, Participant 6 repeated my question while thinking about it and said: "What do I do in my leisure time? I think I work more". Along with it, they do not have enough time for sleeping or eating healthy. The average sleeping time for the participants is only six hours. Some of our dialogues summarize the situation well. Participant 5 answered "I sleep immediately when I have time" when I asked how many hours he/she sleeps in a day. Since they mention about the things they would like to do, such as learning a new language, traveling, going on vacations or spending more time with their family or doing sports, game developers sometimes sound like they wish that they work less, although they do not openly complain about work which is all over their lives.

Another reason for that is related to game developers' conceptualization of "work". Precarious working conditions, especially excessive working hours mostly not bothering the game developers since game development is not completely perceived as a job which is done with the motivation of earning money:

Participant 12: This is not something that you would do for money. If you want to earn money, you should look for another job that you can earn more. Actually, it is something that we enjoy, I don't remember that being awake for so many hours was a torture. When I look back today, I enjoyed everything. They were extremely innovative. Continuously learning new things is extra for me.

Excessive working hours, mainly caused by the unending self-teaching process which is perceived as a chance and counted as a side benefit of the job, are ignored also because game developers are doing what they love as a job. In her book *Do What You Love and Other Lies About Success and Happiness*, Miya Tokumitsu (2015, p. 4) presents two main arguments about the today's popular mantra; "do what you love". First, this discourse facilitates the willful ignorance of working conditions of others by encouraging continuous self-gratification. Secondly, as she argues, "do what you love" discourse exposes exploitation, justifying unpaid or underpaid work.

Doing a paid-work with romanticized motivations like love or passion has important results including obfuscation of the simple fact that work is work whether it is creative or not. In order to explain it, Tokumitsu (2015, p. 2) writes: "most 'sublime' and 'heavenly' products of human artifice, from temples to concertos, also involve a painful panoply of goiters, spasms, eyestrain and blisters". It would not be surprising to mention that, there are many game developers (not limited by the participants), have different permanent diseases in their eyes, aches on their wrists, back or neck, or suffered from depression.

The discourse of "lovable work" legitimizes the excessive workload and working time while blurring the lines between work and life causing the lack of work-life balance. In her research, conducted with intellectual workers⁶, Meltem Yılmaz Şener (2016, p. 229) shows that the ones see working, more a tool for self-actualization then an obligation, perceive working excessive hours as a necessity of the job and they do not avoid shaping the non-work part of their lives through work goals for the sake of their career goals. According to her research, there is almost no distinction between home and work or working time and leisure time among intellectual workers and work is spread out all over their lives. It is underlined that the interviewees of that study often repeated that they have to improve themselves and learn new information, not just about the field they work but also about many different fields since they are dependent on knowledge as is the case with game developers.

Self-teaching process in Turkey's games industry has been experienced by all game developers including the managers or employers that encounter the problem of finding skilled and experienced employees. Participant 4 says: "There is almost no trained employee in Turkey. Especially those who worked in games industry before. You must hire and train somehow. You need to adjust an employee who worked in another field to yourself". Then, usually the solution is hiring one without paying, like internship or hiring with a limited downsize fee. In this case, training new employees becomes a loss of time and money for game companies whereas unpaid or underpaid work pervades the ecosystem.

Participant 19: Someone who has just graduated, must get through a crawling process about something he doesn't know, so he can truly learn something and become a qualified employee. This means for almost a year, in the best scenario, he will work underpaid, but probably will not get paid

⁶ In Turkish: "bilgi işçileri". Basically, the term defines professional workers that does high-qualified, knowledge based, non-routine jobs.

at all for the first 3 months. There are only a few people who can say "I want to learn this job, I can sacrifice, and I would work for free approximately for 3 months". Since there are small teams here, it is difficult for us to hire a new person and train him all the time, while doing our own work. Actually, there are only two or three game companies in Turkey that can do this. That is the difficulty.

As one of the participants explained above, finding skilled and experienced game developers is as difficult as training new ones since most of the companies are small and consist of 5-10 team members. On the other hand, another participant emphasizes one of the advantages of clustering that mentioned before:

Participant 9: Since we have an ecosystem among us, we help each other to lead a person who gets off from a firm to another one. It is difficult to find a game developer, then it is another thing to work with them. But, for example, some firms in the games industry may not be long lasting, they may say "we will keep working only if the game catches on, otherwise you will leave". We should transfer that person who leaves into another firm. If he walks away from the sector, we cannot hold on. We multiply as much as we keep people.

The lack of human capital in the games industry causes a limited number of developers to get in and out into different game companies in the ecosystem. On the one hand, it makes easier to find a new job for experienced game developers. On the other hand, economic instability of the companies in the industry causes employment insecurity as Participant 9 stated above. He also mentions that it is possible to avoid this as long as they cooperate. Overall, in order to cope with the lack of know-how and human capital problems, working with cooperation and solidarity, sharing the experiences and knowledge seems important for both the games industry and the developers.

Cooperation and Solidarity

The lack of know-how and human capital problems are considered as the common meeting point for all game developers. In addition to this common ground, participants mentioned that the relation of game as a cultural commodity to its consumers is a factor that decreases the competition between game companies. In other words, gamers/consumers can play more than one game without a complex process of buying decision. For that reason, the success of a game, developed by a specific company, is not

an actual marketing threat for another (in the field of this research's case). This feature of games as cultural commodities can be another factor supporting the cooperation among digital game companies.

Participant 19: It is a small ecosystem, so everybody knows each other and the games they developed or which sector they are trying to get in. Sometimes we also say something like 'we did that kind of a game, there is an opportunity in there, we may seize it together, or you do it if you have time, etc.'. We may even give advice to each other like these. Normally, in another sector, when someone sees an opportunity, he seizes it and tries to be the best. For us, it is the opposite. There is an understanding much like "let's seize the opportunities and work it together". We have an association also, TOGED. Almost every firm in Ankara are members, there are members coming from Istanbul. We get together, everybody talks about a new game or new opportunities, there is nothing hidden. So, I don't see any competition in here, there are more cooperative processes rather than competitive.

For some of the game developers, TOGED is also a common ground for game companies and the games industry in Turkey. During the interviews, game developers described the roles of TOGED as to increase the awareness of the games industry, to establish a bridge between game companies, to provide information sharing and to represent the game sector. However, some of the participants believe that associations are not helpful to protect game developers or their rights. At the same time, some of them think unions or associations including TOGED are unreliable, not transparent enough and do not function as a connecting force.

Participant 15: I have been in a few meetings of TOGED including the first meeting. I sense in those meetings that some companies are a little bit opportunist and exclude some others. I don't think TOGED has a lot of benefits, it is unclear what they do.

The boundaries developing solidarity among game companies become obvious when sharing information is limited, especially by large-scale⁷ companies.

⁷ Since most of the game companies in Turkey are established by gamers who decide to develop their own games, there are generally micro-sized companies employing fewer than 10 people (Kepenek, 2018, p. 655). By large-scaled, I mean companies employing 40- 50 or more people.

Participant 14: I think, in Teknokent, there is a strong solidarity between our colleagues in incubation centers who try to do small stuff. I saw that they share ideas, pass jobs to each other etc. But our company is bigger, kind of above them and there is so much confidentiality. That's why I don't think we are in solidarity that much. But there is solidarity among small companies, especially among the new entrepreneurs.

Game developers sense a hierarchy between large-scale companies and others usually stemming from closed organizational culture and confidentiality that restricts game developers to talk about the work. From the game developers' statements, it is understood that solidarity based on sharing know-how or industrial knowledge is more common among micro and middle-sized companies and their developers rather than larger companies.

In his research conducted in 2012, Emek Kepenek (2018) interviewed with managers of 25 video game companies in Turkey and revealed that gaming companies are distant to sharing information although it is easy to establish a network:

The number of gaming companies is very limited given the size of the Turkish economy and population. Most of the gaming company managers know each other, which can be beneficial. For example, the companies may exchange information about potential employees. It should be easy to establish a network among the video gaming companies in Turkey because there are so few of them. However, interestingly, 56% (14 companies) believe that the other companies never share their experiences, and 64% (16 companies) do not trust the other companies in the sector. Further, 60% (15 companies) state that there is no knowledge pool that is updated continuously. Overall, the Turkish video gaming companies clearly do not generally share information with each other (Kepenek, 2018, p. 656).

Considering the attitude about sharing information can differ between employees and managers, it is suggested that sharing information is also more common among employees and young managers. Seven participants of this research are managers who specified that there is solidarity mostly among small or middle-sized game companies in Turkey like Participant 4 says; "Except one company, there is solidarity among all companies in ATOM system". Also, many other participants stressed the importance of communication and sharing information in Turkey's games industry and underlined the role of ATOM in this process.

Participant 6: I am absolutely sure that knowledge should not be locked behind the doors. Especially considering Turkey's position in the international games industry, the point which will gain a momentum for us is producing knowledge quickly and this is only possible through sharing. Today, mostly among young managers, young entrepreneurs, sharing information is intense. Each of us can share knowledge with confidence.

Digital game developers agree that it is significant to share information and experience to develop solidarity in order to improve digital games industry and the ecosystem. However, hiding information or ignoring attitudes of organizations, are perceived by game developers as a sign of hierarchy and a boundary for solidarity in the ecosystem. On the one hand, these kinds of attitudes and closed organizational culture damage collective learning whereas one of the key ideas about creative clusters like Teknokent, is to develop and improve collective learning and to use it as an advantage for the creative industry (Hartley, et al., 2013, p. 17). On the other hand, an opposite culture which is open and transparent, such as encouraged by ATOM, helps to build a more cooperative and interactive ecosystem. Additionally, it can help to turn the individual self-teaching into a collective learning process which would improve both Turkey's games industry and the game developers' working conditions.

The Possibilities for Games Industry in Turkey

The future of digital games industry in Turkey is promising. There are companies and game developers who have already achieved international success or awareness despite the limited investments and ongoing problems. It is understood that there are not many game developers in Turkey who have broad knowledge and experience on digital game development and for the ones that have, it is not simple to train newcomers usually because they already have too much workload. In addition to the newcomers, the skilled and experienced game developers are constantly in need of updated information in relation to technological developments. In this regard, game developers require the self-teaching process that takes too much time and effort.

Considering the adverse working conditions aggravated by the self-teaching process, game developers spend most of their time and life by working, although they do not complain since they believe they do what they love, and they spend their time not for work but for self-development. As it is mentioned before, creative industries, referring to the creative production process, are very convenient for breeding neoliberal principles

such as flexibility, insecurity or individualization and discourses like "do what you love" which also affect the way we think, we feel, how we live our lives and our characteristics (see Standing 2015, McRobbie 2016, Sennett 2013).

On the one hand, since the game development, as a job, is strongly attached to continuously changing technological developments and creativity, it is common for game developers to internalize and legitimize working for excessive hours in an unstable environment. On the other hand, those precarious working conditions make developers vulnerable to self-exploitation, cause isolation and alienation while limiting solidarity and collective thinking.

In the game developers' case in Turkey, solidarity by means of sharing information and experience seems very important for skilled and experienced game developers in the industry. In this context, creative clusters have advantages like collaboration with universities or creating new job formations, access to skilledworkforce, knowledge and expertise while creating an opportunity for companies to interact with each other (Flew, 2012, p. 147) as participants of this study confirmed. Also, being in its infancy can be another advantage for Turkey's games industry. According to Kepenek's (2018, p. 657) findings, most of the game companies believe that there is no organizational culture within the industry and it is a main problem. Yet, not having a settled organizational culture within the games industry in Turkey may present an opportunity for creating a fresh, sustainable culture based on solidarity, collective thinking and sharing. At this point, gaming companies and game developers are of great importance since they should be the active actors to determine the industry structure and the culture of the game ecosystem. However, this should not be limited with the companies came out from ATOM or other micro, middle-sized companies. The collaboration of large-scaled game companies is important to pass beyond the boundaries for solidarity.

In order to make suggestions, organizing professional and educational events, colloquiums or workshops where professional knowledge and experience are exchanged, developing collaborative projects can be much more constructive instead of game developers' individual struggle with the lack of know-how. Furthermore, there are different, alternative collective movements of creative workers all around the world. For example, a group of creative workers in Seoul, South Korea, publishing an online magazine to investigate and share various creative workers' living and working conditions (Kim, 2017, p. 8). Likewise, in Europe and North America, there are examples

of collective organizations contesting precarity at diverse points by policy proposals, institutional innovations or experimental structures organized by creative workers to spread the struggle against their precarious working conditions (de Peuter, 2011, pp. 421-422). Game developers in Turkey can find alternative, "creative" ways to develop solidarity by collective thinking and learning. As a result, a collective effort to create a culture based on solidarity among organizations and the ecosystem would improve both the games industry and the game developers' working conditions in Turkey.

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