

ENTREPRENEURIAL DECISION-MAKING IN THE VIDEO GAME
INDUSTRY: A STUDY ON ENTREPRENEURS BASED IN THE METU
TECHNOPARK

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ABSTRACT

ENTREPRENEURIAL DECISION-MAKING IN THE VIDEO GAME INDUSTRY: A STUDY ON ENTREPRENEURS BASED IN THE METU TECHNOPARK

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This study aims to investigate the phases of the journey of entrepreneurs who are faced with high dynamism and uncertainty pertaining to the video game industry, which environmental factors impact their decisions and to what extent effectuation theory of Sarasvathy can explain decision-making process in this context. To this end, twenty-two semi-structured interviews were conducted with entrepreneurs located in METU Technopark, Turkey, and findings were interpreted with grounded theory method. Entrepreneurs in this sample are grouped in terms of the initial conditions and intentions when they joined to industry. These groups are *student entrepreneurs*, *professional idealists*, *job quitters* and *experienced entrepreneurs*. The findings suggest that entrepreneurs basically go through eight phases in their entrepreneurial journeys. These phases are identified as; *initial decision*, *team formation*, *business model & product development*, *marketing*, *networking*, *crisis*, *reconfiguration of organizational structure* and *reconfiguration of teams*. The findings show that entrepreneurs use effectuation approach more than causation in their decisions. However, the context and scope of employment of effectuation approach varies. Besides, some conflicting findings are derived regarding the studies which examine the relationship between employment of effectuation and entrepreneurial experience. This study argues that, entrepreneurs use market experimentation as a tool to navigate uncertainty and although uncertainties cannot be fully resolved, and as the resources

of entrepreneurs increase, their decision-making approach converge towards causation. The policy implications of this study are handled with the lens of national innovation system approach and they are examined under two aims (*increasing the resources of entrepreneurs and companies* and *designing a favorable ecosystem for VGI in Turkey*). as the main policy aims. For these policy aims, a complete policy recommendation framework is suggested at multiple levels.

Keywords: Causation, Effectuation, Entrepreneurial Decision-Making, National Innovation Systems, Video Game Industry.

ÖZ

VIDEO OYUN ENDÜSTRİSİNDEKİ GİRİŞİMCİLERİN KARAR ALMA YAKLAŞIMLARI: ODTÜ TEKNO PARK'TA YERLEŞİK GİRİŞİMCİLER ÜZERİNE BİR İNCELEME

Durukan, Cansu

Doktora, Bilim ve Teknoloji Politikası Çalışmaları

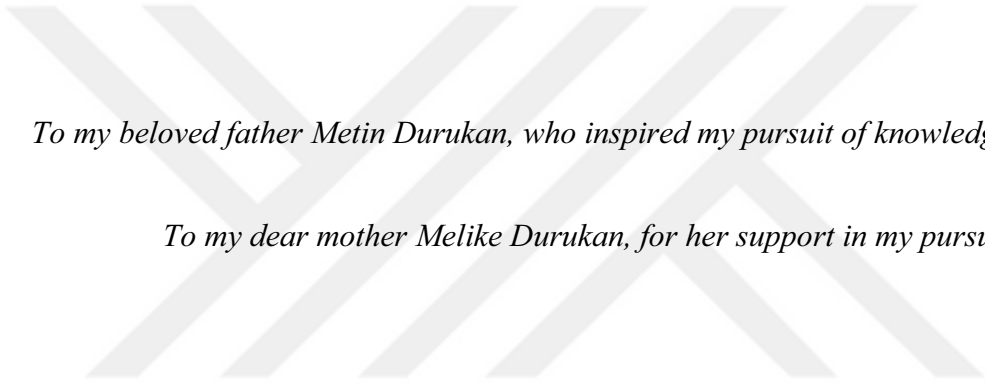
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Bu çalışma, video oyun sektöründeki yüksek devingenlik ve belirsizlik karşısında girişimcilerin, girişimcilik serüvenleri boyunca hangi aşamalardan geçtiklerini, hangi çevresel etmenlerin kararlarına etki ettiğini ve Sarasvathy'nin gerçekleştirme kuramının bu bağlamdaki karar-alma süreçlerini ne derecede açıkladığını incelemeyi amaçlamaktadır. Bu amaçla, ODTÜ Teknokent'te yerleşik yirmi iki girişimci ile yapılandırılmış mülakat gerçekleştirilmekte ve bulgular temellendirilmiş kuram yöntemi ile yorumlanmaktadır. Bu örneklemdeki girişimciler endüstriye girdiklerindeki başlangıç koşulları ve niyetleri bakımından *öğrenci girişimler*, *profesyonel-idealistler*, *işten ayrılanlar*, ve *deneyimli girişimciler* olmak üzere dört başlıkta gruplandırılmıştır. Bulgular, girişimcilerin, girişimcilik serüvenleri boyunca temel olarak sekiz aşamadan geçtiklerini göstermektedir. Bu aşamalar, *başlangıç kararı*, *takım oluşturma*, *iş modeli & ürün geliştirme*, *pazarlama*, *ağ kurma*, *kriz*, *örgütsel yapının yeniden düzenlenmesi* ve *takımın yeniden düzenlenmesi* olarak belirlenmiştir. Çalışma, girişimcilerin kararlarında gerçekleştirme yaklaşımını nedensel yaklaşımdan daha fazla benimsediklerini göstermektedir. Ancak, gerçekleştirme yaklaşımının bağlam ve kapsam olarak kullanımının farklılaştığı bulunmuştur. Ayrıca, gerçekleştirme yaklaşımı ile girişimcilik deneyimi arasındaki

ilişkiyi inceleyen var olan yazındaki çalışmalar ile çelişen bulgular elde edilmiştir. Bu çalışmada, girişimcilerin belirsizlik ile mücadele ederken pazar deneylerini bir araç olarak kullandıklarını ve girişimcilik serüvenleri süresince belirsizlikleri tam olarak gidermek mümkün olmasa dahi, girişimcilerin kaynak bakımından zenginleştikçe karar alma biçimlerinin nedensel yaklaşıma yakınsadığı iddia edilmektedir. Çalışmanın politika açısından etkileri ulusal yenilik sistemleri merceği ile ele alınmış ve iki temel amaç ekseninde (girişimcilerin kaynaklarının atırılması ve Türkiye’de video oyun sektörü için elverişli bir ekosistem yaratılması) incelenmiştir. Söz konusu politika amaçları için çoklu seviyede bütüncül bir politika çerçevesi önerilmektedir.

Anahtar Sözcükler: Gerçekleştirme, Girişimcilikte Karar Alma Yaklaşımları, Nedensellik, Video Oyun Endüstrisi, Ulusal Yenilik Sistemleri.



To my beloved father Metin Durukan, who inspired my pursuit of knowledge,

To my dear mother Melike Durukan, for her support in my pursuit,

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LIST OF ABBREVIATIONS

ATOM	Animation Technologies and Game Development Center
BTK	Information and Communication Technologies Authority
DCMS	Department for Digital, Culture, Media and Sport
CI	Creative Industries
EU	European Union
ICT	Information and Communication Technologies
KOSGEB	Small and Medium Industry Development Organization
METU	Middle East Technical University
OECD	Organisation for Economic Co-operation and Development
OYUNDER	Game Designers, Developers, Producers & Publishers Association
TEKMER	Technology Development Centers
TOGED	Game Developers Association of Turkey
TUBITAK	Scientific and Technological Research Council of Turkey
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
VGI	Video Game Industry
YEKON	Creative Industries Council

CHAPTER 1

INTRODUCTION

1.1. Background and Motivation

Thus, we may have knowledge of the past but cannot control it; we may control the future but have no knowledge of it.

Claude Shannon (Father of Information Theory)

Entrepreneurs are often considered as actors who drive change and economic growth in societies by converting accumulated knowledge into economically relevant knowledge (Schumpeter 1934; Baumol, 1986; Braunerhjelm, Acs, Audretsch & Carlsson, 2010). Knowledge has many forms and its conservation, exploitation, absorption, renewal, and transfer impose various challenges. Especially the management of tacit knowledge has particular importance for companies (Lam, 2000; Teece, 2000; Cavusgil, Calantone & Zhao, 2003). In an age when knowledge is treated as the most important asset for organizations and their competitive power, critical importance is given to tasks such as tracking, storing, and making sense of knowledge, and to those who can fulfill such tasks (Drucker, 1988; Hargadon, 1998). Along with the advancements of Information and Communication Technologies (ICT), knowledge which has been residing previously in tacit forms in locations, culture, and individuals has to some extent become explicit and gained wide access. However, this has created an information overload and reflected itself as an element for complexity and an obstacle for decision-making (Simon, 1997). At this point, one can agree with Simon (1997) when he underlines attention as the scarce resource, not information. It is not a

coincidence that scholars in the field of management, such as Sull and Eisenhardt (2015), have written about simplicity in decision-making, de-cluttering information, and prioritizing goals. Besides, there is a rising research interest on “simplifying strategies” or “heuristics” of entrepreneurs when they need to make strategic decisions in complex and uncertain situations (Busenitz & Barney, 1997; Baron, 1998).

The relationship between entrepreneurial strategic decisions and firm performance has been investigated by many scholars (Dess, Lumpkin & Covin, 1997; Baum & Wally, 2003; Kunch & Morecroft, 2010). Moreover, a stream of research in entrepreneurship known as entrepreneurial cognition is devoted to explore the mental models of entrepreneurs in order to understand how entrepreneurs combine seemingly unconnected information to create new products or services and to start and grow their businesses (Mitchell, Busenitz, Lant, McDougall, Morse & Smith, 2002).

Among the existing literature on strategic decision-making and entrepreneurial cognition, effectuation theory (Sarasvathy, 2001) has started to gain the attention of researchers and the theory has been applied in particular phases such as venture creation (Dew, Read, Sarasvathy & Wiltbank, 2009b; Chandler, DeTienne, McKelvie, & Mumford, 2011; Reymen, Andries, Berends, Mauer, Stephan & Van Burg, 2015), internationalization (Kalinic, Sarasvathy & Forza, 2014; Chetty, Ojala & Leppäaho, 2015), venture creation in international firms (Harms & Schiele, 2012), born globals (Andersson, 2011), product innovation (Berends, Jelinek, Reymen & Stultiëns, 2014), and the research and development process (R&D) (Brettel, Mauer, Engelen & Küpper, 2012). Effectuation is a means-driven decision-making theory (Sarasvathy, 2001), which asserts that entrepreneurs take their decisions based on the *means* they have, rather than the *goals* they have. The “*means*” in effectuation theory refer to the identity, knowledge, and network of entrepreneurs. In this view, individuals start with the questions “*Who am I, What I know, and Whom I know*” and follow some specific decision-making criteria along the process. The direction of the decision-making process, starting from means towards goals, is justified by the existence of uncertainty; i.e., by acknowledging the hardship of knowing the future ex-ante. Regarding the base of the decisions, effectuation is often considered as the opposite of causation (goal-

driven decision-making) (Sarasvathy, 2001), since in effectuation, goals are identified after a dynamic process of market feedback and stakeholder engagement (Kalinic, et al., 2014).

Effectuation theory proposes a toolbox for entrepreneurs in the face of uncertainty for evaluating risks and resources, potential partnerships, handling unexpected contingencies, and framing the future. By this way, it makes entrepreneurial activities in high uncertainty environments less intimidating (Sarasvathy, 2001; Sarasvathy, 2008).

1.2. Research Questions

This dissertation investigates the phases of the entrepreneurial journeys of entrepreneurs in the Turkish video game industry with its scope covering 22 entrepreneurs based in the METU Technopark. By considering effectuation and causation as two opposite approaches of decision-making in a continuum, the dissertation explores decision-making approaches of entrepreneurs in the Turkish video game industry. In this manner, the decisions of entrepreneurs in the video game industry are compared in terms of causation and effectuation usage in each phase of their entrepreneurial journey. Acknowledging the fact that decision-making approaches can change over time and depend on environmental circumstances, this dissertation is also interested in detecting any triggering factors of decision-making throughout the entrepreneurial journey. In other words, antecedents of effectuation and causation decision-making approaches are also explored. By this way, the study aims to discuss the usefulness of effectual decision-making strategies during the evolution of ventures within the particular dynamics of the Turkish video game industry. The research questions of this dissertation are provided below:

- ✓ RQ 1: What are the phases of the entrepreneurial journey of entrepreneurs in the video game industry in the context of METU Technopark?
- ✓ RQ 2: How do the decisions made in various phases of entrepreneurial journey fit Sarasvathy's effectuation theory?

- ✓ RQ 3: Which factors can explain any diversion from the effectual decision-making approach?

Commonly used indicators of the performance of creative industries are limited to several macro indicators such as share of creative industries in the gross domestic product, import-export volumes, and employment numbers. A similar situation is also valid for the video game industry in Turkey (UNCTAD, 2015). In addition to the lack of available data on the video game industry, the underrepresented state of the industry in scholarly work and the nature of the investigated topic (decision-making approaches of entrepreneurs) guide us to conduct first-hand data collection and engage in direct contact with participants. Therefore, this dissertation adopts a qualitative methodology for the investigation of the entrepreneurs' decision-making phenomenon. To this end, the study uses face-to-face, semi-structured interviews as its main research tool and data is triangulated by secondary sources of data such as website information of participants and news in digital media. The findings of the research are interpreted via the grounded theory approach.; the data analysis will be explained in methodology chapter.

Entrepreneurs in the video game industry face with various challenges such as the uncertain nature of demand for their products (Caves, 2000), the necessity to integrate multiple knowledge-bases for survival (Camerani, Masucci & Sapsed, 2015), a different management and leadership approach for creative labor (Mumford, Scott, Gaddis & Strange, 2002), the ability to balance commercial and creative goals (Tschang, 2007), the necessity to cope with the reliability problem of market feedback (Chatfield, 2011), and the necessity to produce in a fast industrial clock-speed (Cadin & Guérin, 2006). These challenges, combined with the key role of knowledge in firm performance and innovation, put entrepreneurs in an unpredictable environment when they need to make strategical decisions. I have reasoned that these challenges and the pertinent uncertainty in the video game industry can provide a suitable context to explore effectuation theory.

1.3. Description of the Research Context

The participants of this study are entrepreneurs from METU Technopark. METU Technopark is located in the Middle East Technical University's campus in Ankara, Turkey.

The legal framework regarding technoparks was enacted in 2001 by Law no 4691 in Turkey, which regards technoparks as “Technology Development Zones”. Companies that reside in technoparks benefit from several tax incentives based on this law; they are exempt from corporate income tax and their R&D personnel is exempt from personal income tax. Moreover, software products in technoparks are also exempt from value added tax. R&D companies also benefit from 50% reduction in social security premiums of their R&D personnel for five years¹.

In order to support technology-based entrepreneurship, METU Technopark provides several pre-incubation programs such as New Ideas and New Businesses Accelerator Program, Animation Technologies and Game Development center, and the METU KOSGEB TEKMER incubation centers². METU Technopark is also the implementation authority of the Scientific and Technological Research Council of Turkey (TUBITAK) BIGG program³, which is a grant program for supporting young entrepreneurs with innovative business ideas.

¹ METU Technopark Website. <http://odtuteknokent.com.tr/tr/hakkinda/turkiyedeki-teknokentler> Last access: 02.07.2019

² METU Technopark Website. <http://odtuteknokent.com.tr/tr/hakkinda/odtu-teknokent-hakkinda-2> Last access: 02.07.2019.

³ TUBITAK Website. <http://www.tubitak.gov.tr/tr/destekler/sanayi/ulusal-destek-programlari/icerik-1512-teknogirisim-sermayesi-destegi-programi-bigb> Last access: 13.07.2019

1.3.1. History of the ATOM pre-incubation center

As a Technology Development Zone, METU Technopark hosts the first pre-incubation center specialized in animation and game development technologies called ATOM. Established in 2008, ATOM provides the infrastructural needs of the game developers. Among the 22 participants of this study, ten of them reside in ATOM, while eight participants are graduates of ATOM. As such, ATOM constitutes the major research context of this study.

As of January 2019, ATOM has supported 105 game developer teams and contributed to the establishment of 25 companies. Overall, the center has provided services for over 1500 game developers and entrepreneurs, and enabled the production of 570 games of different scales which have been accessed by around 20 million players⁴.

1.3.2. Selection process to ATOM

ATOM opens calls for applications twice a year. Game developers can apply to ATOM as individuals or as teams. The size of the teams in ATOM varies between two to three people. Applicants are evaluated in terms of their project plan, team vision, and team structure characteristics by an evaluation board, which composed of game company representatives and academicians. Successful applicants gain the opportunity to work on their projects in the center for a year. The directors of ATOM state that they encourage individual developers to be part of a team or to establish their teams with other individual developers. ATOM also hosts the globally renowned game development hackathon; Global Game Jam (GGJ). Game developers can meet with the ATOM community during the GGJ or directors of ATOM might approach teams that they consider to be eligible and propose them to apply to ATOM during this event.

⁴ “ATOM is 10 years old, 2018” <https://www.youtube.com/watch?v=RR2h3xbKcwo> Last access: 08.07.2019

Several participants note that many people come to ATOM but only few of them stay. After their selection to ATOM, some participants leave when they face the real challenges of game development and they find out that game development takes a longer time than they expected. Additionally, METU Technopark management may direct companies to ATOM if their business model is related with the game industry in order to provide them with the benefits of ATOM's ecosystem.

ATOM is a *pre-incubation center* located at the basement of the Gallium Block in METU Technopark. The center is designed as an open office where team members have their own desks and computers. The desks of the members of the same game developer teams are placed together. During their stay in the center, game developers benefit from the internet, hardware, and software infrastructure services. The office of the pre-incubation center's director is also located in the same open office. By this way, developers can reach the director whenever they need.

In METU Technopark, there are also incubation centers. At the incubation centers, entrepreneurs' entry and exit hours are monitored via face recognition systems so that entrepreneurs record their attendance to the center. On the other hand, the entry and exit hours of ATOM are flexible and attendance to the pre-incubation center is not strictly monitored. The pre-incubation center is open 24 hours to support the flexible working hours preferred by creative workers. However, the flexibility of working hours also makes it difficult for visitors to find all ATOM developers at once. Most of the participants in this study preferred to schedule our interviews in the afternoons as many developers prefer to work at the center at nights.

The main function of ATOM is to host the game developer teams at the pre-establishment phase of their companies. Typically, teams can stay for one-year in ATOM in the pre-establishment phase however, if the physical space is available ATOM can host them for longer after they establish their companies. The director of the center thinks that having teams and companies at the same physical space adds value to the ATOM's ecosystem. Similarly, some participants mention their contentment about being in the same physical space with the game developers they

respect. The participants declare that being in the same physical space with more experienced developers provides them a sense of comfort by knowing that they can easily consult the knowledge and experience of more experienced developers in case of problems.

In the weekly pit-stop meetings with the ATOM director, game developers come together to discuss the current development level of their games, business models, problems they encounter, or recent news about the game industry. By this way, developers can find solutions and tap into the knowledge and experience of the local game developer community.

ATOM provides specialized training programs tailored for the specific needs of the teams or projects and puts teams in one-to-one contact with experts and mentors in the industry. After being accepted to ATOM, teams start to receive training on entrepreneurship and on the technical topics in the video game industry. In addition to these, game developers have the opportunity to attend several workshops. The content of these workshops varies in terms of design, techniques, and other issues.

ATOM acknowledges that the business development skills of entrepreneurs who operate in creative industries may remain insufficient, therefore ATOM tries to improve game developers' skills in these regards. All ATOM teams are provided project management support, business development, marketing, and business and team management training. After their one year in the center, the incumbents graduate from ATOM are encouraged to enter the sector, and establish their companies with a rich background. The content of the training programs provided by ATOM is summarized in Table 1.

Table 1

Summary of Training Programs Provided in ATOM

Entrepreneurship	Effective presentation of projects Entrepreneurship and innovation Public incentives for game industry Project presentation workshops Project funding
Business Model	Business model development Canvas model Intellectual property rights in games Income, monetization models and user acquisition in games Sustainability in games
Team Management	Establishing and expanding game communities Partnership experiences in the game development process Project and team management
Technical	Analytical systems in games Atmosphere and art management in games Big data analysis Game engines and the game development process Game publishing experiences Independent game development Introduction to game design Management of visual development processes Solutions regarding problems encountered in Unity Stages and importance of market test processes Unity workshop

Source: Personal communication with the director of ATOM on January 21, 2019.

1.3.3. ATOM as a facilitator for reducing uncertainty

The director of the ATOM pre-incubation center states that they want entrepreneurs to come to their center first before they decide to establish their companies, since he believes that the entrepreneurs' stay in ATOM will decrease the likelihood of business failures in the future. The METU Technopark and ATOM pre-incubation center offer

an uncertainty-reducing environment for the entrepreneurs, which is an important factor for understanding the decision-making environment of this dissertation's participants. Some entrepreneurs can resolve several uncertainties by the knowledge they can derive through training programs. Furthermore, the lack of resources of entrepreneurs in terms of working space, infrastructure, knowledge, network, skills, and motivation are partly compensated by the pre-incubation center's services. Participants of this study attribute great value and importance to ATOM for their development as game developers/entrepreneurs, and for the development of game industry in Turkey as well. Many of the participants state that they would not take this business seriously if they had not made contact with ATOM.

In the context described above, this dissertation explores the phases of entrepreneurial journey of entrepreneurs in the video game industry. After the identification of the phases, this study identifies the entrepreneurs' decision in these phases as effectuation and causation and explains the reasons behind employing a particular decision-making approach by acknowledging the triggering factors which may have played a role in their decisions.

1.4. Justifying the Context of Research

The video game industry is one of the sub-sectors of the creative industries. Creative industries (CI) is a term proposed by the Department of Culture, Media and Sport of the United Kingdom (UK) Government (DCMS, 1998) and is used to define industries in which creativity is at the heart of the production. CI covers advertising, antiques, architecture, crafts, design, fashion, film, leisure software, music, performing arts, publishing, software, and the TV and radio industries. Since the 1990s, employment and value-added generated by creative industries has shown an upward trend and the value generation power of creative efforts has gained higher visibility in the past decade (DCMS, 2001; DCMS 2016; United Nations Conference on Trade and Development, 2015; Van der Pol, 2007). In the European Union (EU) 12 million people are employed in cultural and creative industries, which corresponds to 7.5% of

the total employment and 5.3% of total EU Gross Value Added (Austrian Institute for SME Research and VVA Europe, 2016).

Potts (2009) argues that creative industries are part of the evolutionary mechanism in the economy. In this view, creative industries are acknowledged as elements of the innovation system and essential parts of economic growth and development. Potts (2009) also asserts that the strength of creative industries lies in their strong relationship with technology adoption, diffusion, and demand-side characteristics. According to Stam, de Jong, and Marlet (2008), creative industries have an important role in the development and maintenance of cultural identities in society. The change in the CI's economic contribution is attributed to increased investment and supply of input factors, qualitative improvement in human capital, demand growth towards cultural products due to globalization and opportunities created by the ICT revolution (Potts, 2009). Therefore, creative industries are portrayed as new sources of innovation and economic value in the knowledge economy (OECD, 2014). Creative industries have also been integrated into the economic and development agenda of the United Nations Conference on Trade and Development; so that, in their 2010 *Creative Economy Report*, creative industries are considered as “a key ingredient for job creation, innovation, and trade while contributing to social inclusion, cultural diversity, and environmental sustainability” (UNCTAD, 2010).

Among other industries covered under cultural and creative industries, the video game industry contributes more to the digital economy in terms of revenue and growth of businesses (UNESCO, 2015). The main indicators of the video game industry are covered under four- and five-digit *Standard Industrial Classification Codes*; 58.21 Publishing of Computer Games and 62.01/1 Ready-made interactive leisure and entertainment software development (Office for National Statistics, 2007). Notably, IT, software, and computer services may also include part of the video game industry based on the business domain of the companies (DCMS, 2016). In the UK, the size of the software, computer games, and the electronic publishing industry has increased from £9,800 M to £24,700 M from 1997 to 2005 (DCMS, 2016). Among other creative industries, software, computer games, and the electronic publishing industry had

grown 10% on average in terms of gross value added (GVA) for the 1997-2005 period, while the growth ratio was 6% for the total sum of creative industries (DCMS, 2007). Between 2012-2014, the number of people employed in the computer games industry in UK rose from 15000 to 24000 and GVA increased from £156 M to £426 M between 2008-2014 (DCMS, 2016). A similar trend is observed in Turkey as well. Turkey was placed 18th among the top 20 countries in terms of revenue generated from video games and was ranked first in the Middle East region (Gaming in Turkey, 2017). In Turkey, approximately 75% of the population use smartphones and there are more than 30 million of active gamers (Gaming in Turkey, 2017). In 2017, the export revenue obtained from games produced by Turkish game developers increased 40% with respect to the previous year and reached 700 million USD (Gaming in Turkey, 2017). Mobile games, which are games played on smartphones and tablets, constitute 51% of the global game market revenue (Wijman, 2018). In Turkey, the growth rate of the mobile games market was greater than other segments, while PC/Console games constituted the majority of the game revenues (Gaming in Turkey, 2017). For the first quarter of 2019, the export revenue from games reached 1.50 billion USD (Gaming in Turkey, 2018).

Despite the rising economic performance and contribution of the creative industries to the economy, there is a significant gap in the literature on the topic, especially in empirical research (O'Connor, 2009). This deficiency can be due to the statistical invisibility of industry's constituents or hardship of economic conceptualization of creative products, since standardized longitudinal statistics are missing for these industries (UNCTAD, 2010). On the other hand, these industries are systematically ignored by existing innovation measurement tools, such as *Community Innovation Surveys*, primarily because firms do not meet Eurostat's⁵ firm-size criteria.

⁵ Statistical population of CIS. Available at https://ec.europa.eu/eurostat/cache/metadata/en/inn_cis2_esms.htm Last access: 17.06.2019

1.5. Definition of Key Terms

Causation: Causation is a goal-driven decision-making approach which takes a particular end as given and focus on selecting between means to create that end by predicting the future (Sarasvathy, 2001).

Effectuation: Effectuation is a means-driven decision-making approach which “rests on a logic of nonpredictive control” used in uncertain environments to create new ends through an “iterative and interactive stakeholder acquisition process” (Sarasvathy, 2001; Dew et al., 2006).

Entrepreneur: Someone who is “able to recognize the commercial potential of the invention and organize the capital, talent, and other resources that turn an invention into a commercially viable innovation” (Audretsch et al., 2002, p.157).

Entrepreneurship: A research field in social sciences which contains “the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited” (Venkataraman, 1997; Shane & Venkataraman, 2000).

Entrepreneurial journey: A form of organizational change and “an emergent hierarchical system of artifact-creating process” which contains “entrepreneurial sense-making, entrepreneur-stakeholder interaction, firm level interaction and market level interaction” (Selden & Fletcher, 2015). Each product has its own entrepreneurial journey and “the journey concludes for the firm once that venture definitively realizes a profit or loss from activities related to that product” (McMullen & Dimov, 2013).

Triggering factors: In this dissertation, triggering factors correspond to the environmental factors that have an impact on entrepreneurs’ decisions. They are generally key events, ideas, observations or conditions of entrepreneurs.

Phase: In this dissertation, phases refers to the constituent sub-processes of entrepreneurial journey. Each phase contains the decisions and actions of entrepreneurs related with a particular subject.

1.6. Organisation of the Dissertation

This dissertation is organized in eight chapters. Chapter 1 provides the motivation, goals, background and scope of the dissertation. It presents, research questions, research context, scope, and an overview of the methodology. Chapter 2 provides the literature review about the main theoretical framework used in the dissertation; namely, effectuation theory. In Chapter 2, how the theory's originators and other scholars employ effectuation theory in their conceptual and empirical studies is also examined. Thus, the theory's place in the wider academic sphere is provided. This part also summarizes the advantages, disadvantages, and limitations of the studies on effectuation in terms of their theoretical aspect and methodologies. Chapter 3 provides background information about the video game industry through its competition dynamics, major technological changes, market trends in the globe and in Turkey; which entrepreneurs may consider in their decisions implicitly or explicitly. Chapter 4 elaborates on the research design and methodology. Chapter 5 presents the findings of the research. Chapter 6 discusses the findings of the study and presents a grounded theory framework about entrepreneurial decision-making in the Turkish video game industry. Chapter 7 provides the policy implications of the research and puts forward a complete policy framework consisting of policy aims, tools, and targets at various levels. Finally, Chapter 8 summarizes the study, explains its limitations, and provides recommendations for future research.

1.7. Novelty of the Study

To the best of our knowledge, this study is the first in Turkey which examines the decision-making approaches of entrepreneurs in the video game industry by considering the dynamic process of entrepreneurial journey, and the inherent uncertainty and environmental conditions in the video game industry. This study has

theoretical and empirical contributions. First, with grounded theory method, this study develops an eight-phase model for entrepreneurial journey of entrepreneurs in video game industry. This model contains the following phases: (i) the initial decision phase, (ii) team formation phase, (iii) business model and product development phase, (iv) networking phase (v) marketing phase (vi) crisis phase (vii) organizational reconfiguration phase and (viii) the phase in which entrepreneurs reconfigure their team members. Hence, this study provides a good first step in terms of revealing the particular phases of entrepreneurial journey in the Turkish video game industry.

This study contributes to the body of studies in effectuation theory. Firstly, to the best of our knowledge, there are no studies in which effectuation theory is implemented in the context of video game industry entrepreneurs. Secondly, most of the empirical research in the field of effectuation, group entrepreneurs in different contexts and portray a story of “entrepreneurial decision-making” (Hauser, Eggers & Guldenberg, 2019; Szambelan & Jiang, 2018; Tryba & Fletcher, 2019). In these studies, similar conditions of uncertainty for different contexts are presumed. It might be debatable to what extent this presumption reflects the truth. The standpoint of this study focuses on entrepreneurs in the same industry which provides a more consistent basis to observe the inherent dynamics of the industry and their impact on decisions at the individual level.

Environmental conditions (industrial dynamics) are rarely integrated into the explanation of the certain type of decision-making in empirical studies on effectuation theory. Maine, Soh and Dos Santos (2015) show that in the biotechnology industry, scientist-entrepreneurs cannot employ effectuation despite the existence of high environmental uncertainty at the clinical trial phase because of the regulations imposed by venture capitalists and regulatory bodies. Ignoring these kinds of specific features of the industry may cause researchers to make biased conclusions about decision-making approaches of entrepreneurs. Therefore, this study considers decision-making as an interactive and adaptive process affected by the cognitive abilities of the entrepreneur and his/her environmental constraints. This study also has virtue in terms

of the bigger size of its sample, compared to other studies such as Maine et al. (2015) that incorporates the environmental factors in decision-making.

This study explicates the factors that play a role in entrepreneurs' decisions in each phase of entrepreneurial journey. Investigating the triggering factors in each phase also improves the understanding of the antecedents of decision-making approaches. A similar design of research focusing on the antecedents of effectuation/causation can be also found in other studies such as Reymen et al. (2015). However, in these studies, transition from effectuation to causation or vice versa is determined by looking at the frequency of effectuation/ causation type of decisions made by individuals through a continuum. This sort of individual specific approaches on the antecedents of change in decision-making approaches may have disadvantages since antecedents can refer to the learning process of the entrepreneur and may not leave room for making a comprehensive inference about the context of the decision-making process.

The findings of this study indicate that effectuation is utilized more than causation by video game industry entrepreneurs due to the central role of market experimentation which requires fast and reactive decisions. Besides, in this study, the dynamics behind the transition from effectuation to causation is explained. This study argues that although uncertainties in the video game industry cannot be resolved fully, as entrepreneurs have more resources, their abilities to cope with uncertainty and resilience increases. Which in turn, enables entrepreneurs to make decisions in causation approach. In addition to this, by showing the different use of effectuation as a tool for adaptation and exploration, this study directs new areas of research in effectuation theory.

Uncertainty, complexity, organizational learning and their impacts on industrial organization, competition and innovation dynamics have been widely discussed in evolutionary economics as well. However, in the evolutionary economics approach, studies have a wider perspective; i.e. they mostly focus particular industrial districts, countries, or technological change in a particular domain itself. In this study, a closer look to these phenomena is provided. Besides, most of the studies in the evolutionary

stream of research, the focus rests on firms. However, in this dissertation entrepreneurs themselves are considered as the main unit of analysis.

By acknowledging the systematic factors that affect the level of uncertainty and entrepreneurial opportunities in the video game industry, this study integrates the role of the national system of innovation on the entrepreneurs' decisions as well. In this way, this study brings a more balanced approach to entrepreneurial decision-making by integrating the micro and macro aspects of entrepreneurs' decisions. Moreover, such standpoint of this dissertation allows for a comprehensive and clear insight into the industry's state of development in Turkey.



CHAPTER 2

LITERATURE REVIEW

The aim of this chapter is to introduce and critically examine the effectuation theory and it is composed of seven parts. Section 2.1 discusses the theoretical foundations of effectuation theory, and Section 2.2 explains its principles. Section 2.3 discusses the major empirical studies by the scholars developing the effectuation theory. Section 2.4 elaborates on effectuation theory by including the research from a wider range of scholars conducting studies in the fields of management, innovation, and organization studies. Section 2.5 illustrates how effectuation theory can be linked to organizational growth and the body of literature in practitioner research, particularly about start-ups. Section 2.6 discusses the limitations of effectuation theory and finally, Section 2.7 summarizes the chapter.

2.1. Roots of Effectuation Theory

Effectuation theory was developed by Saras D. Sarasvathy in order to draw a portrait of common characteristics of the entrepreneurs who successfully survived in the complexity of the real socio-economic world by being *ambiguity lovers* and *risk-takers*. To this end, Sarasvathy started to look for a systematic pattern in such entrepreneurs' mindset and actions. Hence the function of effectuation theory was defined as “(to) demystify entrepreneurial decision-making” by “unlocking the cognitive black boxes” (Dew, Sarasvathy, Read & Wiltbank, 2006, pp. 319-320).

Sarasvathy developed her theory based on the commonalities of successful entrepreneurs' decision-making patterns (Sarasvathy, 2008). The starting point of the

effectuation theory goes back to Sarasvathy's Ph.D. thesis on expert and novice entrepreneurs. In her dissertation, she conducted an experimental study with successful entrepreneurs to understand their approach to ten decision problems which might appear during the establishment of a firm. Based on the findings of her research and observations she made by analysing these entrepreneurs, she proposed a theory on the emerging patterns of entrepreneurial behavior (Sarasvathy, 2003, pp. 205-206).

She noticed that most of the research about entrepreneurship was focused on the analysis of successful firms established by these entrepreneurs. However, she argued that firms were only some tools for the change brought to socio-economic life by the entrepreneurs, and it was the entrepreneurs who actually drove the change. Hence Sarasvathy directed her focus on the entrepreneurs themselves as the main research subjects in her inquiries while asking the question of how pre-firms develop into firms and what entrepreneurial processes are behind this development (Sarasvathy, 1997).

In addition to her earlier research, her experimental study on the risk-taking and decision-making tendencies of bankers and entrepreneurs implied a differentiated cognitive frame for risk management approach of entrepreneurs (Sarasvathy, Simon & Lave, 1998). She compared entrepreneurs with bankers based on their perception and management of a variety of risks. In her experiment, she asked participants to make decisions under various circumstances where there were financial risks, a risk of death and/or health risk, or a risk of a natural disaster. The results showed that entrepreneurs and bankers behaved differently from each other. Entrepreneurs accepted the risks as they were and focused on controlling the outcomes at any given level of risk. They framed the problem space based on their personal values and assumed personal responsibility for the outcomes to a larger extent. On the other hand, bankers focused on a specific target regarding the outcomes, attempted to control risks within a structured problem space, and avoided situations in which they would have to assume higher levels of personal responsibility (Sarasvathy, 2008). These results made Sarasvathy think that the entrepreneurs might have a different approach to the notions of risk, gain, and loss. This result was important since it concluded that risk was not an inhibiting factor for entrepreneurs.

Sarasvathy's most salient study came into the academic sphere in 2001 where she introduced her ideas in more detail and proposed an alternative conceptualization of entrepreneurship (Sarasvathy, 2001). Her thought-provoking ideas started with her conceptualization of the world. First, she proposed that the world was not in a steady state but was "in the making". What did it mean for the entrepreneurship research and theory? It meant that market opportunities were not a part of some zero-sum game; they were not out there to be found and exploited. Rather, opportunities were continuously emerging and entrepreneurs could take them or even create their own market opportunities. Second, she represented a more realistic decision-making environment for entrepreneurs by integrating the limitations of human cognition in terms of information processing and considering the quality and quantity of available information provided for decision-making. Third, she acknowledged that goal ambiguity was a common case for entrepreneurs, which made decision-making more challenging (Sarasvathy, 2001). These concepts were not discovered by Sarasvathy; she herself reported that she was influenced by Herbert Simon (who was her Ph.D. advisor) and his ideas while developing effectuation theory (Sarasvathy, 2003).

Simon's bounded rationality model had an impact on evolutionary economists and the Austrian economic thought schools. By considering bounded rationality as a background to the decision-making environment, Sarasvathy integrated the environmental uncertainty concept, which was defined by Frank H. Knight (1921) as immeasurable and incalculable risk. A visual representation of Sarasvathy's decision-making process is provided in Figure 1.

Making decisions, using knowledge and transforming them into products or services sound like walking in the forest on a foggy night without a compass. It may seem like an overwhelming task for an entrepreneur. In such an environment, what can guide the entrepreneur in making the next decision? Sarasvathy argues that rational decision-making in the sense of "optimizing the choices" by considering all consequences may not be possible in conditions of high uncertainty (Sarasvathy, 2001). In order to optimize the decision-making process, the decision-maker has to have prior knowledge about the alternative choices in order to be able to compare the alternatives. Under

conditions of uncertainty, neither the available options nor the consequences of taking any of them are clear.

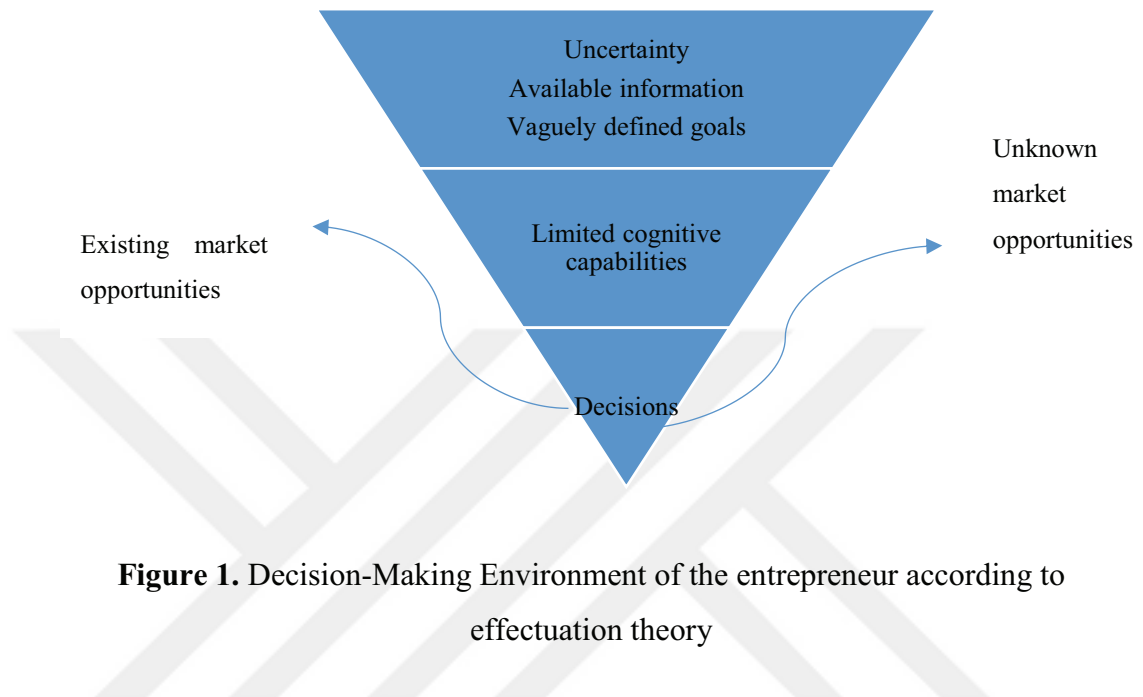


Figure 1. Decision-Making Environment of the entrepreneur according to effectuation theory

Hence Sarasvathy claimed that under these conditions, traditional, prediction-based strategy-making approaches would fail and the prediction of the future would not be possible. She argued that in such an environment, *the control of the future* can be partially achieved by applying specific principles on decision-making (Sarasvathy, 2001; Saravathy, 2008). These principles will be explained in more detail in the next section.

In conclusion, what Sarasvathy did was to acknowledge bounded rationality, challenges related to information access, poorly defined goals of entrepreneurs, and the existence of an environment with many uncertainties as the principal components of the strategic decision-making process for entrepreneurs.

2.2. Principles of Effectuation Theory

Effectuation theory has five principles. This first principle is called *bird-in-hand*. It argues that entrepreneurs start their business by taking their identity, accumulation of

knowledge, and network as their main resources (Wiltbank et al., 2006). In other words, entrepreneurs start with what they have in hand. According to this principle, entrepreneurs follow a simple protocol of asking questions like “Who am I, What I know, and Whom I know” and focus on what they can generate (an effect or an outcome) by using these resources (Kalinic et al., 2014) rather than making business plans first and applying strategic management techniques. The question of “Who am I” yields the “*tastes, traits, and abilities*” of the person (Sarasvathy & Dew, 2008); by asking “What I know”, the entrepreneur reveals information about “*education, experience-based and other types of prior knowledge*” (Sarasvathy & Dew, 2008), and the answer to the “Whom I know” question includes “*social and professional networks*” (Sarasvathy & Dew, 2008). The principle focuses on the effects that entrepreneurs can create with what they already possess. This principle encourages entrepreneurs to start their venture with what they have in hand, rather than waiting to obtain the necessary resources, which suggests an approach grounded on means to the end, rather than one that is goal-oriented (Sarasvathy, 2008, p. 15). The second principle is called *affordable loss* and is based on the idea that the future is unknown and making correct and accurate predictions about future returns is not always possible. Hence entrepreneurs can only decide on their next moves considering what they can afford to lose as a result of their actions and decisions. In a way, it is a route for decision-making based on the worst-case scenarios in which losses are calculated in real terms, rather than as probabilities (Sarasvathy, 2008, p. 133). In this sense, the affordable loss principle opposes the neoclassical view on the choices of market actors, which posits expected returns as the foundation of individual action (Sarasvathy et al., 2008, p. 109).

The third principle is called *lemonade*, which suggests “leveraging contingencies rather than avoiding, overcoming, and adopting them” (Sarasvathy, 2008, p. 16). By this way, lemonade principle encourages the entrepreneur to let uncertainties go in his/her favor or to deem the uncertain environments as opportunities. The fourth principle is called *crazy-quilt* and it suggests having the attitude of willingness to make

commitments and welcoming inputs from stakeholders about the venture, without making a prior competitive analysis for potential stakeholders (Sarasvathy, 2008).

The fifth and last principle is called *pilot in the plane*, which emphasizes the entrepreneur himself/herself as the main actor in terms of handling unexpected events. It points towards being in a mode of control for just-in-case situations. In particular, it prioritizes human agency and will over any extrinsic evaluation about the situation in which the entrepreneur finds himself/herself (Sarasvathy et al., 2014, p. 74). The examples of extrinsic evaluations can be socioeconomic trends, long term market analysis reports, or technological trajectories (Sarasvathy, 2008, pp. 16-239). A summary of Sarasvathy's effectuation theory principles is provided in Table 2.

Table 2

Summary of Effectuation Principles

Name of the Principle	Practical applications
Bird-in-hand	Starting with the existing means: identity, knowledge, and networks
Affordable loss	Considering the actual cost of worst-case scenarios before taking action
Lemonade	Leveraging contingencies, considering uncertainties as opportunities
Crazy-quilt	Showing an open and flexible attitude towards potential stakeholders and their probable contributions
Pilot-in-the plane	Being the main decision maker when it comes to deciding on the direction of the venture

Source: Adapted from Sarasvathy, 2001; Sarasvathy, 2008.

2.3. Early Studies on Effectuation by Sarasvathy and her Colleagues

Initially, the theory has been applied by its originator and her colleagues in various contexts, mostly through experimental research design. Sarasvathy and Dew (2005) investigate the entrepreneurial processes behind the emergence of the RFID (Radio-frequency identification) industry. In a different study, Wiltbank, Dew, Read and Sarasvathy (2006) explore the possible useful strategies that entrepreneurs could use

in order to achieve their vision under circumstances where they are about to decide the next step to take. Dew and Sarasvathy (2007) investigate the challenges that entrepreneurs face in terms of dealing with stakeholders and being innovative at the same time. Dew, Sarasvathy, Read, and Wiltbank (2008a) analyze how entrepreneurs successfully establish firms and create new markets when faced with dilemmas in the innovation process in terms of building a balanced strategy between fulfilling the current market demand for their products and keeping their competitive power against new firms. The same group of researchers published another study in 2008, where they investigate the emergence and transformation of the American coffee company and coffeehouse chain, Starbucks, as an example of a successful organization which was able to change the design of the environment to which it belonged (Sarasvathy et al., 2008).

Some studies focus solely on a specific principle of effectuation. As an example, Dew, Sarasvathy, Read, and Wiltbank (2009) discuss the affordable loss principle as part of the entrepreneurial toolbox for decision-making and attempt to associate this principle to behavioral theory. In this study, the authors deal with several themes such as the self-awareness of entrepreneurs about the costs of failure, the circumstances which the affordable loss principle could be particularly useful for, and optimality of using an affordable loss mindset in investment decisions. Similarly, Sarasvathy and Dew (2008) examine the crazy-quilt principle of effectuation and explicate the steps of partner selection by discussing the assumptions about human behavior and the role of opportunism and altruism in commitments.

The study of Wiltbank, Read, Dew and Sarasvathy (2009c) on angel investors in the U.S. reveals that non-predictive (control) strategies result in fewer failures in investment decisions. The experimental study of Dew, Read, Sarasvathy and Wiltbank (2009a) involving 27 experts and 37 novice entrepreneurs illustrates the strong role of experience on marketing decisions. The results of the study show that while novice entrepreneurs rely on predictive strategies, expert entrepreneurs use effectual (non-predictive or control) strategies to tackle market uncertainties. The researchers also utilize the same experimental study to derive insights regarding market creation (Dew,

Read, Sarasvathy & Wiltbank, 2011). Harmeling and Sarasvathy (2013) examine the implementation of leveraging the contingencies principle in two different cases. Sarasvathy, Kumar, York, and Bhagavatula (2014) explore the ways that effectuation can help overcome knowledge barriers for local firms, while Kalinic et al. (2014) analyze the implications of effectual decision-making in the context of SME internationalization. Table 3 provides a summary of these empirical studies.



Table 3

Empirical Studies on Effectuation by Sarasvathy and Colleagues

Authors	Name of the Journal	Research Question	Sample	Key Findings
1. Sarasvathy, Simon, and Lave (1998)	Journal of Economic Behaviour & Organization	What are the differences between entrepreneurs and bankers in terms of their risk perceptions?	Four entrepreneurs and four bankers	Bankers and entrepreneurs frame problems differently. Bankers target expected returns of their decisions and try to reduce the risk as much as they can. On the other hand, entrepreneurs take risk as given and focus on controlling the outcomes.
2. Read, Dew, Sarasvathy, Song, and Wiltbank, (2009a)	Journal of Marketing	How do entrepreneurs choose their marketing approaches when faced with uncertainty?	27 expert entrepreneurs and 37 managers with limited entrepreneurial experience and 34 executives	Expert entrepreneurs rely more on effectuation than novices in their marketing decisions under uncertain environments. Expert entrepreneurs are more skeptical of the information derived from market research; they rely more on their previous experiences. Expert entrepreneurs are more open to new markets and tend to think in the long-term.
3. Dew, Read, Sarasvathy, and Wiltbank (2009b)	Journal of Business Venturing	How expert entrepreneurs differ from novices in terms of framing problems related to new venture creation?	27 expert entrepreneurs and 37 MBA students	Expert entrepreneurs are less likely to chase projects with greater expected returns. Rather, they emphasize the affordability of the projects compared to novice entrepreneurs. Expert entrepreneurs take their personal experience as the basis of their actions and prefer to build new ventures with partners.

Table 3 continued

4. Wiltbank, Read, Dew, and Sarasvathy, (2009c)	Journal of Business Venturing	How angel investors make- investment decisions for start-ups. What are the consequences of using predictive versus non-predictive strategies?	121 angel investors based in the USA	Causal decisions result in bigger scale investments while effectual decisions result in fewer investment failures. The direct relationship between the decision-making approach and investment outcomes is not clear.
5. Dew, Read, Sarasvathy, and Wiltbank (2011)	Journal of Evolutionary Economics	How expert entrepreneurs use effectual logic to conceptualize new markets	27 expert entrepreneurs and 37 MBA students	Expert entrepreneurs use available means to transform market opportunities rather than making simple recombinations. Expert entrepreneurs generate a greater number of market ideas than novices.
6. Harmeling and Sarasvathy (2013)	Entrepreneurship Theory and Practice	What is the role of contingencies in the establishment process of two entrepreneurship education programs?	Stories of two latecomer entrepreneurs	By leveraging negative and positive contingencies, it is possible to create successful outcomes even in unlikely situations.
7. Kalinic, Sarasvathy, and Forza (2014)	International Business Review	What are the implications of effectual logic in the internationalization process of SMEs?	Five Italian manufacturing SMEs	Lack of knowledge and network do not prevent SMEs from initiating internationalization of their businesses. Effectuation enables rapid inclusion to the foreign markets and helps overcome liabilities of being a foreigner. SMEs prefer causal decisions in less complicated tasks of internationalization.

Table 3 continued

8. Dew, Read, Sarasvathy, and Wiltbank (2015)	Journal of Business Venturing Insights	How novice and expert entrepreneurs differ in terms of their control strategies. What is the role of experience in entrepreneurial decision-making?	412 entrepreneurs with varying levels of experience	Expert entrepreneurs' pattern recognition capability is significantly higher than novices. Expert entrepreneurs focus more on controlling the future rather than predicting it, since experience provides them the necessary means of control.
9. York, O'Neil, and Sarasvathy (2016)	Journal of Management Studies	Why and how individuals engage in environmental entrepreneurship	25 environmental ventures from the Renewable Energy Forum of a US-based business school.	Identity typology of entrepreneurs (commercially dominant/ecological dominant/blended) impacts the process of new venture creation.

Studies of effectuation theory seem repetitive and like modifications of previous studies especially in the early years of the field. as they are carried out by a small group of researchers. Moreover, the small number of available empirical studies overlap in terms of their data set and/or methods. Among the nine empirical studies, three of them (number 2, 3, and 5 in Table 3) utilize an experimental method. Although experimentation could be a preferred method for understanding causal relationships between variables, it must be kept in mind that it also allows for the researcher's intervention and manipulation, which in turn may create artificiality (Cooper, Schindler & Sun, 2014, pp. 192-194). Dew and Sarasvathy (2009a, p. 9) state that "they (participants) were provided a detailed written description of an imaginary entrepreneurship game". Cooper et al. (2014, p. 203) state that "If subjects know they are participating in an experiment, there may be a tendency to roleplay". Therefore, reaching a conclusion through experimental methods in social sciences necessitates researchers to be cautious about it.

It can be argued that the empirical studies carried out by Sarasvathy and her colleagues need to be enriched in terms of number and methodology. Although their studies provide insight and bring attention to the role of experience on decision-making in entrepreneurship, further support from field studies is required in order to improve effectuation theory.

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2014, pp. 192-194). Dew and Sarasvathy (2009a, p.9) state that “they (participants) were provided a detailed written description of an imaginary entrepreneurship game”. Cooper et al., (2014, p.203) state that “If subjects know they are participating in an experiment, there may be a tendency to roleplay”. Therefore, reaching a conclusion through experimental methods in social sciences necessitates researcher to be cautious about it.

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2.4. Interpretation of Effectuation Theory in Related Literature

In order to have a solid understanding of effectuation theory, one must consider its impact on other academic studies in a broader sense. Since its inception, effectuation theory has inspired debates among scholars on several fronts. In the early days, the theory was developed by the exchange of ideas within a small group of researchers, and the application of effectuation theory gradually expanded and became known across disciplines. Therefore, this section provides the recent discussions and interpretations of effectuation theory in conceptual studies first and then provides a summary of empirical studies.

2.4.1. Conceptual studies

Effectuation theory is considered as one of the prominent theories in the entrepreneurship research, along with the theories of causation and bricolage (Fisher, 2012). Baker, Miner, and Eesley (2003) demonstrate that bricolage and effectuation strategies have some common characteristics regarding the establishment phase of

firms in terms of starting with a set of means; however, the bricolage strategy is differentiated from effectuation in terms of its scope, which covers search processes to fulfill pre-existing goals with given means. Landstörn, Harirchi, and Aström (2012) indicate that effectuation theory is an example of the increased theoretical interest in entrepreneurship research influenced by Frank Knight's idea of "the entrepreneur as the risk-taker". Similarly, effectuation theory is recognized as one of the recent approaches contributing to the creation of a more dynamic version of the Resource-Based View (RBV). However, the theory differs from RBV in terms of its acknowledgment of human imagination and other resources affecting success which were ignored or considered as worthless elements by previous scholars (Kraaijenbrink, Spender & Groen, 2010, p. 3). Effectuation theory is covered in a special issue of *Organization Science*, under the debate on the adoption of design thinking in organization studies research (Jelinek et al., 2008). Grégoire, Corbett, and McMullen (2011, p. 1461) address effectuation theory as a cognitive approach to entrepreneurship which focuses on the dynamic interactions between mind and environment by considering the cognitive implications of uncertainty and the constraints it imposes on information processing and heuristics for planning. Dacin, Dacin, and Tracey (2011) argue that effectuation theory offers time-saving advantages for entrepreneurs by facilitating quick decision-making and rapid resource configurations. They also postulate that effectuation theory is useful to study social entrepreneurship since it emphasizes the context of entrepreneurial decision-making. The theory is associated with the positive effect of improvisation on performance outcomes in studies which explore the relationship between business plans and firm performance (Burke, Fraser & Greene, 2010, p. 21).

Another group of researchers argues that when resources fall short, the entrepreneur might try to cope with this problem by focusing on the outcomes that can be generated with the existing resources rather than seeking ways of acquiring new resources; therefore, effectuation is acknowledged as a form of internal coping strategy for

entrepreneurs (Dolmans, van Burg, Reymen & Romme 2014, pp. 7-8). An innovative perspective towards effectuation about the role of market feedback is emphasized by Simsek, Fox, and Heavey (2015). They draw attention to the alternative role of feedback in effectuation; not only a tool for the course correction but a tool for the investigation of new spaces of opportunities (Simsek et al., 2015, p. 311). Ganco (2013) regards effectuation as a complementary approach in entrepreneurship research which puts entrepreneurial context into its focus. The subjective conceptualization of entrepreneurial opportunities in effectuation theory is also supported in some empirical studies as well (Hang, Garnsey & Ruan, 2015; McKelvey, Zaring & Ljungberg, 2015). The theory has been linked with emotional, cognitive, and instinctive decision-making in the case of early investment decisions of angel investors (Huang & Pearce, 2015). Shepherd et al. (2015, p. 7) assert that effectuation theory has potential contributions to entrepreneurship research since it considers the time dimension for opportunity related decisions. Haefliger, Jager and von Krogh (2010) examine the transformation process of video game users (players) into user entrepreneurs in the motion pictures industry known as the Machinima phenomenon. In this study Haefliger et al. (2010) explain the transformation process of gamers into user-entrepreneurs with effectuation theory since they observe that entrepreneurs created their own opportunities by acting on their knowledge and skills in games rather than following a predefined plan.

2.4.2. Empirical studies

As mentioned earlier in this chapter, effectuation theory has been utilized in varying emphasis and domains in empirical studies. More detailed insight can be derived from the studies in which the theory is used as the main framework. Therefore, this section provides a review of empirical studies published in top peer-reviewed journals in which the effectuation theory is used as the main framework for analysis. This part of the literature review consists of the following journals: *Academy of Management Journal*, *Academy of Management Review*, *Organization Studies*, *Organization*

Science, Strategic Management Journal, Administrative Science Quarterly, Journal of International Business Studies, and the Journal of Management. Top journals focusing on the interdisciplinary sciences and technology policy studies, such as *Research Policy, Technovation, and Industry & Innovation* were also considered. Table 4 illustrates the research questions, methods, and findings of these studies.



Table 4

Empirical Studies in Top Management Journals (Authors other than Sarasvathy and Her Colleagues)

Authors	Name of the Journal	Aim	Sample	Method	Key Findings
Chandler, DeTienne, McKelvie and Mumford (2011)	Journal of Business Venturing	How to develop valid measurable scales for distinguishing between effectuation and causation in the new venture creation process	The sample covers two field studies: The first study includes 111 companies aged five years or less in the surgical and medical instruments and electrical measurement industries. The second study covers 1146 new firms aged between two to five years in plastic products and prepackaged software industries.	<i>Statistical analysis.</i> A survey was designed to characterize and distinguish between the effectuation and causation approaches. Four constructs (affordable loss, experimentation, flexibility, pre-commitment, and alliances) are created based on Sarasvathy's description of effectuation.	Uncertainty has a positive correlation with effectuation and a negative correlation with causation. Affordable loss, experimentation, flexibility, and causation are validated as measurable factors. The pre-commitment strategy is used both in causation and effectuation
Brettel, Maurer, Engelen, and Küpper (2012)	Journal of Business Venturing	How effectuation and causation strategies can be used in corporate R&D projects	400 experienced R&D project managers from companies with more than 50 employees in R&D-intensive industries in Germany.	<i>Statistical analysis.</i> Interviews with 123 experts and a pilot study are used to show the peculiarities of effectuation and causation in the R&D context. A multi-factor measurement model is developed.	Effectuation generates better results in highly innovative R&D projects because of its flexibility in handling of unexpected events and enabling the birth of individual projects. Causation and causation-based management techniques yield better outcomes in R&D projects with low levels of innovation.
Maine, Soh, and Dos Santos, (2015)	Technovation	What are the specific stages in which the entrepreneurs are likely to effectuate? Do entrepreneurs make	Eight scientist-entrepreneurs in three biotechnology companies in North America.	<i>Semi-structured interview method.</i> Key events and decisions are chronologically listed as a result of the interpretation of interviews and secondary data.	Environmental constraints in the form of industrial regulations play a role in the entrepreneurs' decisions. Entrepreneurs in the biotechnology industry take causal decisions

Table 4 continued

	decisions in a causation mode even in highly uncertain circumstances		Decisions are grouped under six categories (founding partner's selection, venture creation, accessing the first funding, technology-market matching, deciding on portfolio breadth/focus and business model adaptation). The uncertainty level in each key decision is ranked and each decision is matched with effectuation or causation.	despite the high amount of uncertainty stages in business development
Akemu, Whiteman, and Kennedy, (2016)	Journal of Management	How the company Fairphone started as a social activist movement and turned into a company producing smartphones through effectual networks	Data is derived from a 15-month in-depth longitudinal single case study of a social enterprise based in Amsterdam. Participant observations, 130 field visits, and additional documents are gathered.	During the transformation process of an awareness campaign into a venture, effectual decision-making approach is evident in terms of making decisions based on current means, leveraging contingencies, making pre-commitments based on affordable loss principle.
Welter and Kim (2018)	Journal of Business Venturing	What is the effectiveness of effectuation and causation strategies under risky and uncertain situations	n/a	Until the entrepreneur has the ability to make predictions about the future with 75% or above accuracy, effectuation outperforms causation in risky and uncertain contexts.

In their research on entrepreneurs working in the surgical and medical instruments and electrical measurement industry, Chandler et al. (2011) explore which alternative route (effectuation or causation) entrepreneurs take during the new venture development process. Chandler et al. (2011) adopt the view of effectuation as the opposite of causation. The differentiation is made on the basis of entrepreneurs' attitudes towards market opportunities. In Chandler et al.'s method, actions aimed for the exploitation of a market opportunity are categorized as causation, while the actions aimed for the transformation or creation of a market opportunity are categorized as effectuation. Another measure that enables the differentiation of effectuation from causation is the existence of planned strategies such as business plans. Preparing and relying on the initial business plan are categorized as causation. Alternatively, the lack of a business plan and not relying on one, or co-creating the plan with stakeholders is categorized as effectuation. Chandler et al. (2011) are the first researchers who attempt to develop validity and measurability of the theoretical constructs in effectuation theory. They design a questionnaire based on the main constructs of the effectuation theory (Chandler et al., 2011, p. 378) and develop a Likert scale for 17 statements with "strongly agree" and "strongly disagree" as anchors. The statements indicate the utilization of causation and effectuation. Although causation is formed as one item construct, effectuation is a composite construct, composed of the experimentation, affordable loss, flexibility, and pre-commitments principles. In other words, effectuation can only be grasped with the compound effect of the other four constructs. The results suggest that both the causation and effectuation logics can lead to success for entrepreneurs who are about to make new ventures. Chandler et al. (2011) find that using effectuation in circumstances where uncertainty prevails is the better strategy. A missing point in this study is the "pilot in the plane" principle of effectuation. Although they admit that their scale for pre-commitments is not strong, it does not cover the pilot in the plane principle. The pilot in the plane principle calls for control strategies rather than prediction. Sarasvathy et al. (2014, p. 74) state that "*The pilot-in-the-plane principle is an explicit rejection of inevitable trends*". Additionally, the survey statements do not fully explain the process behind the firms' development processes. One of the statements in Chandler et al. (2011) asks whether the entrepreneurs relied

on their existing resources or not. Yet one cannot directly understand whether that decision is taken at the initial business establishment phase and/or whether it is related to another task in a different phase.

Maine, Soh and Dos Santos (2015) explore whether there are certain stages in the entrepreneurs' market journey in which a decision-making pattern (effectuation or causation) is more likely to be dominant. They investigate the decision-making processes of scientist-entrepreneurs in the biotechnology industry as they go through different decision-making processes under varying levels of uncertainty and resource constraints. One of the strengths of their study is the acknowledgment of the influence of external factors on entrepreneurs' decisions. They note that the initial phase decisions are one-time decisions all made in the effectuation mode. However, the growth phase decisions taken after iterative processes and decision-making are shaped by the received feedback and unexpected contingencies (Maine et al., 2015, p. 63). Their study shows that the influence of environmental constraints increases in time. The transition between effectuation and causation is explained by varying degrees of external constraints. External constraints are defined as "*the ecosystem factors which limit the set of potential decision choices of the entrepreneur*" (Maine et al., 2015, p. 64). According to their study, these factors can be venture capitalists' quality specifications, increased size of the companies, and specific regulations in the industry. By distinguishing the phases of the traditional business model in the biotechnology industry Maine et al. (2015) observe the varying degrees of effectuation or causation-dominant processes. Maine et al.'s (2015) study has strengths in terms of reliability since they include not only the founder of the firm but also other stakeholders as respondents. This reduces the respondents' recall bias which is considered as one of the major weaknesses of the retrospective data gathering method. However, the average company age in their study is ten years. According to Sarasvathy's standards, ten years of experience refers to the experience level of an *expert entrepreneur*. Therefore, it would be hard to claim that Maine et al. (2015) accurately cover the start-up process of young firms. Furthermore, the small size of the sample reduces the generalizability of the results.

Akemu, Whiteman, and Kennedy (2016) explain the story behind the creation process of a product named “Fairphone” which came out of no entrepreneurial intentions at the start. The study provides a case for the goal ambiguity of entrepreneurs, which is an assumption of effectuation theory. The Fairphone case highlights the importance of taking advantage of contingent events, the role of networks and social media, and taking actions based on the affordable loss principle. Although this study provides rich insights about the process of venture formation, it lacks generalizability of the results since it is a single case study.

2.5. Organizational Maturation and Entrepreneurial Experience

The impact of experience on the decision-making approaches of entrepreneurs is also addressed by Greiner (1998) in the context of evolution of organizations. According to Greiner’s organizational growth model, companies pass through five distinct phases during their life span. Greiner (1998) argues that each phase has unique problems, therefore each phase necessitates different solutions. Throughout these phases, organizations evolve in terms of knowledge and problem-solving capabilities. It can be observed from Figure 2 that the first phase of an organization relies on individual and creative actions of the entrepreneur for his/her firm to get off the ground. In this phase, both the entrepreneur and his/her product are at the testing phase and the main focus is on the realization of the product. Identifying, quantifying, and managing risks may not be well-realized in the start-up phase. Therefore, future prediction will be easier after companies gain experience in the market. Effectuation can enrich the entrepreneurial behavior of firms in this phase. In the second phase called “*the period of sustained growth under directive leadership*,” job specialization increases, hierarchies are generated, relationships become more formal, and standardization of activities becomes necessary. In the second phase, the dominant decision-making type would be causation rather than effectuation. In the third phase defined as *the next era of growth characterized by the delegation of responsibilities* among managers and employees, the organization moves towards a decentralized structure. In this phase, effectuation is likely to be the dominant decision-making strategy. However, in this phase, one might face the problematic aspects of holding an effectual decision-making

logic, since effectual decisions might generate problems of coordination and the company might fall into a crisis of control. In the following phase, the company decides to use formal systems to obtain greater *coordination and control*. Formal planning procedures are established, expenditures are made more carefully, the decision-making power of middle managers are subjected to justification. In the fourth phase, one could expect the dominant decision-making strategy to be causation. Nevertheless, Greiner (1998) argues that the increased level of procedures and the bureaucratic system creates a lack of confidence in the organization in the fourth phase. Therefore, *spontaneity* must come into play again in the fifth phase. However, in the fifth phase, the company is already too large and complex. Therefore, the focus will be on *collaboration* about solving problems as a team. To this end, the control mechanism gives way to social control and self-discipline. In this phase, the dominant decision-making strategy would be effectuation, but to a lesser level than in Phase 3. As one can infer from Greiner's model, effectuation and causation counterbalance each other in each phase.

Starting a business, developing strategies for turning ideas into products, and enabling the sustainability of start-ups have found a place in the practitioner research as well. Practitioner research on entrepreneurship carries several commonalities with effectuation theory in terms of its emphasis on experimentation rather than prediction and planning activities in the generation of business models, and also in terms of its emphasis on the integration of results of business model experimentation to the next decisions. The practitioners' approach finds traditional management principles insufficient to explain the uncertainty and chaotic environment that most of the entrepreneurs' face. In this view, it is argued that the "allure of a good plan, solid market strategy, and thorough market research" can misguide entrepreneurs and they may cause problems which can result in business failure for early-stage ventures (Ries, 2011). In a similar vein, Kawasaki (2004) states that "*doing*", not "learning to do", is the essence of entrepreneurship. However, the "just do it" type of strategies are not considered as a viable alternative; both "microscopic" examination of strategies and "telescopic" projection towards future are considered necessary (Kawasaki, 2004).

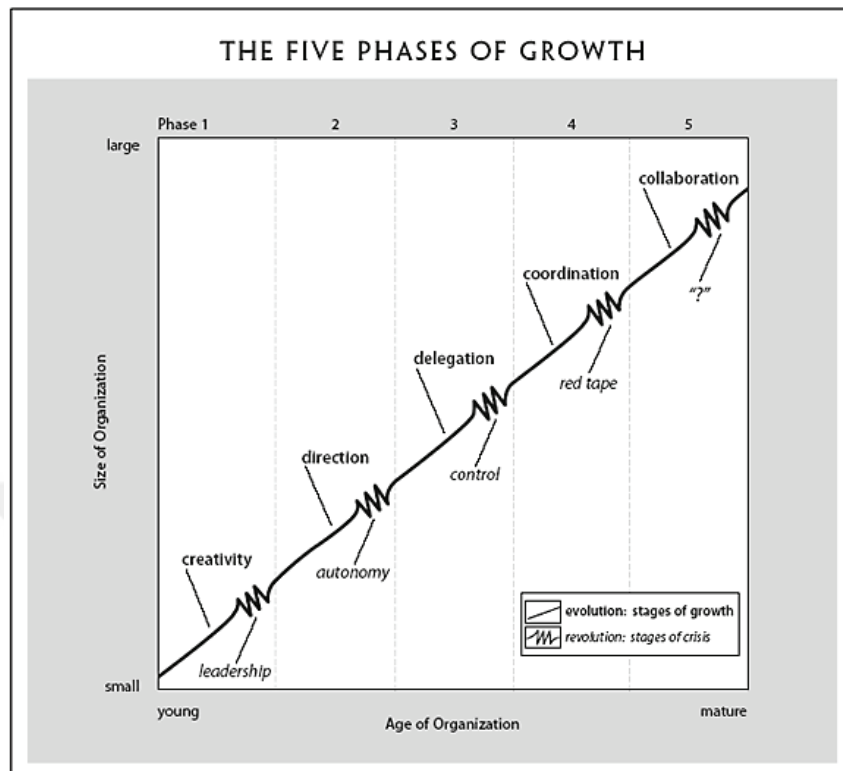


Figure 2. Greiner's model on the evolution of organizations

Source: <https://hbr.org/1998/05/evolution-and-revolution-as-organizations-grow>

Another notable approach in the practitioner research is the lean start-up method. The lean start-up model makes starting a business less risky; it contains similar tools of lean production by putting learning at the core to create sustainable businesses (Blank, 2013). By acknowledging the high failure rates of business plans, the lean start-up method “favors experimentation over planning, customer feedback over intuition, and iterative design over traditional ‘big design up front’ development” (Blank, 2013). As an alternative to burdensome business plans, the lean start-up method adopts a “build-measure-learn” method to ensure flexibility (Ries, 2011). Osterwalder and Pigneur (2010) define a business model as the “logic of how a company intends to make money” and propose a customer-centric model of business model known as the canvas model. In the canvas model, key resources of the entrepreneurs are defined as physical, intellectual, human, and financial resources (Osterwalder & Pigneur, 2010), which is similar to the definition of “means” in effectuation theory (Sarasvathy, 2001).

2.6. Limitations of Effectuation Theory

Effectuation theory has had broad repercussions in the academic literature; it has brought new perspectives to entrepreneurship research, established new links with the existing research traditions, and revived old debates. However, the theory has a few limitations and several issues in the theory need further clarification.

Despite the studies that link effectuation theory with existing approaches in entrepreneurship research, the theory has been also criticized on several fronts. For instance, Shepherd (2011, p. 419) argues that stress, emotions, and time pressure could play a role in the entrepreneur's decision-making process, in addition to uncertainty. Perry, Chandler, and Markova (2012, p. 855) claim that effectuation and causation are not the opposite ends of a continuum and note that starting with an existing goal in the decision-making process is not the opposite of starting with existing means. They suggest that in order to claim an opposition between effectuation and causation, the same contradiction must also be demonstrated between the principles of effectuation and causation approaches as well. Autio, Dahlander, and Frederiksen (2013) note that effectuation considers entrepreneurial action and opportunity evaluation as "two intertwined concepts"; yet their study finds that the two processes are distinct from each other and influenced by different stimuli. Effectuation theory is also criticized due to its insufficient argumentation on the relation between tasks and decision-making. For instance, Landstörn et al. (2012) argue that the specific requirements of the tasks may impose a certain type of decision-making process and bring an alternative approach to the conceptualization of entrepreneurial decision-making which focuses on task specificity rather than the entrepreneur's experience.

Some of the criticisms directed towards effectuation theory are centered around particular principles of the theory. Goel and Karri (2006, p. 484) point out that some tendencies of entrepreneurs may leave them unprepared against the risks that could arise due to over-trusting if they choose to employ effectuation approach. They state that "*They (entrepreneurs) may view trusting someone as an integral risk of doing business, and thus a constraint. As a result, they may not devote any cognitive capacity*

of trying to reduce the risk of over-trust". The criticism regarding the over-trust is explained by Sarasvathy and Dew (2008) on the grounds that over-trusting will not be a problem if entrepreneurs employ a step by step approach when they are evaluating the commitments of each stakeholder to the venture. Similarly, some scholars mention that "focusing on the downside of a venture" may cause entrepreneurs to "underinvest" in their ventures (Ucbasaran et al., 2013).

The main criticisms of effectuation theory come from those who are suspicious of effectuation as a breakthrough in entrepreneurship research (Arend, Sarooghi & Burkemper, 2015). Using their three staged theory assessment framework (3E framework: experience-explain-establish) Arend et al. (2015) underline the inadequacy of critical and empirical studies about effectuation theory in the literature. They indicate in detail that, effectuation theory is inadequately built on existing theories (Arend et al., 2015, pp. 737-638) and note that the theory could not be called as the "new theory of entrepreneurship" due to its problematic parts regarding the assumptions, prepositions, testability, lack of comprehensiveness, directionality at the core mechanisms, the limited representation of market competition, the under-examined role of the institutions, and a lack of specifications of boundaries. They attribute the recent popularity of effectuation to its promising notions about becoming a successful entrepreneur by following an easy to follow decision-making protocol (Arend et al., 2015). In their response to Arend et al., Read, Sarasvathy, Dew, and Wiltbank (2016) state that Arend et al.'s evaluation of effectuation theory is false-rooted since what they did was to evaluate an evolutionary theory with positivist notions of falsification which assumed a steady state world. Similarly, Gupta, Chiles, and McMullen (2016) also supported effectuation theory on the grounds that Arend et al.'s theory evaluation model can only be suitable for variance theories which focus on "what" questions; however, effectuation theory is a process theory which focuses on "how" questions. Therefore, Gupta et al. (2016) argue that Arend et al. (2015) make a categorical mistake in their critical evaluation of effectuation theory.

Reuber et al. (2016) approach this debate from a different point and argued that so far, the development of effectuation theory has focused on creativity driven activities and

ignored the role of habits in decision-making. They note a gap in effectuation theory regarding the role of habituated responses of entrepreneurs and the role of the surrounding institutions in the decision-making process.

Sarasvathy starts her arguments based on the acknowledgment of the limitations of human beings in terms of interpreting information, therefore she argues that in strategical decisions, focusing on the actual losses in the worst-case scenarios would be a better strategy than trying to predict the future (Sarasvathy, 2001). However, she does not provide sufficient explanations for the fact that entrepreneurs' worst-case scenarios are also performed under bounded rationality conditions and that entrepreneurs may not have a realistic calculation of what the worst-case scenario can be and what would be its consequences. In other words, the decision-making process portrayed in the effectuation theory is still not free of cognitive computation and it seems that the smooth decision-making promise of the effectuation might not be realistic.

The crazy-quilt principle of effectuation theory frees entrepreneurs at the start from spending time on selecting among potential partners (Sarasvathy, 2001). However, this also compels the entrepreneurs to constantly be in the mode of watching out for stakeholder relationships and re-evaluation of commitments as the venture evolves. A similar concern was raised by Göel and Karri (2006) regarding the idea that the crazy-quilt principle provides an environment for the misinterpretation of commitments and for the misjudgment about the continuity of trust in partnership relationships. Besides, the studies which undertake the validation of measures of effectuation theory show that it can be problematic to decipher effectuation and causation in empirical studies especially for the principle regarding precommitments in partnerships (Chandler et al., 2011).

Empirical studies on effectuation center around explaining new venture creation, the comparison of effectuation and causation decisions, and the comparison between novice versus expert approaches in strategic decisions. Still, it is not clear from the existing empirical studies that whether effectuation is used out of a necessity because

of the resource constraints resulting from uncertainty that novice entrepreneurs face in the firm formation stage (Dolmans et al., 2014), or whether it is driven by a conscious choice, as is shown in the experimental studies focusing on expert entrepreneurs (Dew et al., 2009a; Dew et al., 2009b; Dew et al., 2015). If the entrepreneurs prefer using effectual decisions out of a “lack of resources” condition, then it could be expected that once entrepreneurs have more resources and as their uncertainty resolving abilities develop, they might be less likely to effectuate. If one equates effectual decision-making with being visionary as described in the case of expert entrepreneurs, then the theory should give more room to the role of personality traits on strategic decision-making. In this case, the challenges and limitations of the trait-based approaches in entrepreneurship research should also be acknowledged (Brockhaus, 1982; Gartner, 1989).

Effectuation is considered to fill a gap in the literature by including the role of imagination and aspirations of the entrepreneur (Sarasvathy, 2002). In Sarasvathy’s work, there is a selection bias. Although portrayed humbly, entrepreneurs are depicted as heroes or people who have somehow become successful.

Moreover, the antecedents of the change in entrepreneurs’ decision-making approach has not been investigated in detail yet. We believe that there is more room for elaboration in terms of the role of environmental factors in determining the decision-making approach to be used.

2.7. Chapter Summary

In this chapter, the effectuation theory is presented with its theoretical roots and principles. Besides, I show how whereeffectuation theory is placed in the wider entrepreneurship research by depicting conceptual and empirical implementations of the theory. On the theoretical aspect, effectuation theory has raised criticism from scholars in terms of treating effectuation as the opposite of causation. Besides, there has been some criticism on particular principles of the theory such as “the affordable loss” and “the crazy-quilt”. Empirical studies have been flourishing in terms of context

and method, most of these studies are focused on a particular entrepreneurial process in which effectuation and causation are compared in terms of expert versus novice entrepreneurs. I have seen that in order to understand the use of effectuation and causation in particular contexts, the studies focus on the key decisions to detect the adoption of effectuation or causation. I have also linked effectuation theory with the organizational maturation theories and practitioners' research since both approaches emphasize a flexible approach towards planning and describe a dynamic change in decision-making approaches throughout the entrepreneurial journey.



CHAPTER 3

VIDEO GAME INDUSTRY

This aim of this dissertation is to examine the decision-making approaches of entrepreneurs in the video game industry in the context of METU Technopark. In Chapter 2, the literature review about effectuation theory revealed that environmental uncertainty and external factors such as specific industrial regulations have a central role in entrepreneurs' decisions. To complement our understanding about entrepreneurial decision-making in this sphere, I believe that it is necessary to provide background information about the market dynamics, industrial competition, and innovation in the video game industry since entrepreneurs may consider them in their decisions implicitly or explicitly. Therefore, this chapter consists of four main parts. Section 3.1. sets the stage by providing definitions of some key terms such as *game* and *game genres*, and presents the historical development of the video game industry together with innovations in gaming hardware. Section 3.2. briefly explains the key competition dynamics across different market segments, the role of creativity in the video game industry, the production process of video games, and factors necessary for the survival and growth of businesses. Section 3.3. explains the characteristics of market demand for games. Section 3.4. presents recent global market trends. Finally, Section 3.5. provides a summary of the chapter.

3.1. Role of Play and Game for Humans

According to Chatfield (2011), humans have been playing games since they were able to read, write, and perhaps speak. While Dempsey, Lucassen and Rasmussen (2002)

broadly defined game as a set of activities involving one or more players, *game* and *play* are two different types of activities which are often confused. Free play has importance for adapting to social life, coping with stress, and developing cognitive skills such as problem-solving (Wenner, 2018). The importance of play is valid for animals, as well as for humans. Skills developed during play help animals to survive and reproduce. Play has a central role for children in terms of the development of cognitive, physical, social, and emotional well-being and it allows children to use their creativity, imagination, decision-making skills, and dexterity (Ginsburg, 2007). Hence play is considered as one of the rights of children⁶.

Rules are the key factors that distinguish game from play. Crawford (2012) acknowledges that the most important elements of video play are rules, effects, immersion, engagement and flow, performance, identity, roles and embodiment, intertextuality and transmedia, narrative and geography. Finally, the competition aspect of games is considered as a common theme, “even if that competition is with oneself” (Dempsey et al., 2002, p. 159). Free play, on the other hand, has no clear goals and rules.

Figure 3 illustrates the clarification made by Juul (2010) between game and play, considering their characteristics. In Juul’s definition, a game contains goals, constraints, payoffs, and consequences. Goals in the game can be clearly defined, enforced by the game to play according to a goal by punishing the player; alternatively, goals can be implied in a game towards making high scores or by allowing only for a narrow range of playing styles (Juul, 2010, p. 133-134).

⁶ See, “The General Comment No. 17 (2013)” on United Nations Convention on the Rights of the Child (UNCRC) Article 31 launched in September 2013.

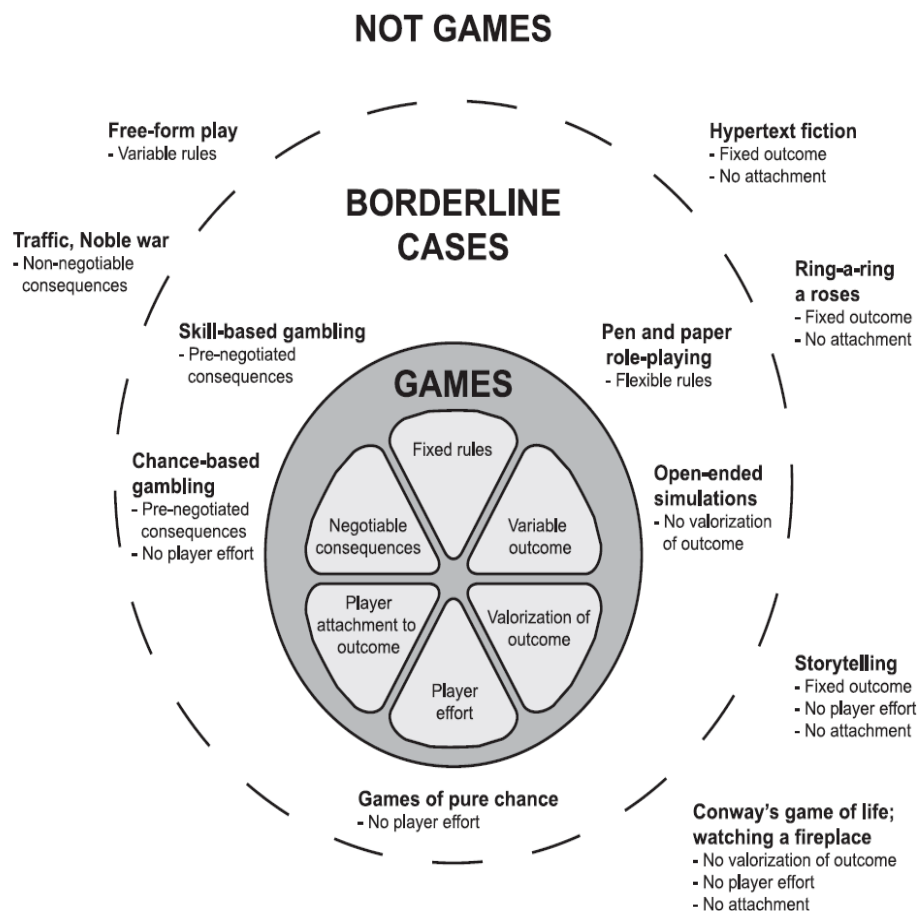


Figure 3. The classical game model.

Source: Juul (2010)

Ryan, Rigby and Przybylski (2006) recognize that video games have a function of satisfying three psychological needs of its players, which are competence, autonomy, and relatedness. Informational complexity, responsiveness, challenge, and fantasy are deemed as motivating factors for playing games (Malone, 1981). Games allow for exploring complex systems by enabling role-playing, shifting variables, and seeing how outcomes are affected (Chatfield, 2011). Video games may often contain artificial intelligence to transfer the feeling of the plausibility of the behavior. Artificial intelligence was developed by “mimicking the thought processes of humans and other living beings” (Johnson, 2014). Moreover, video games are acknowledged as powerful tools to increase learning (Dempsey, Haynes, Lucassen & Casey, 2002) and to develop

skills for acquiring knowledge in “the culture of the information society” (Gros, 2007, p. 28).

3.2. What is a Game?

Games are defined as “both object and processes” (Aarseth, 2014, p. 484), “complex software programs” (Bogost, 2006, p. 55) or “multimedia interactive entertainment software” (Bernal-Merino, 2015). Video games offer a new, computer or another smart device-aided way of storytelling with richer components than movies or novels. As a result, story rich games are increasing in digital formats (Murray, 2004). Narrative rich video games are sometimes called “cyber-drama” (Murray, 1997) or “ergodic literature” (Aarseth, 1997). However, gaming differs from other storytelling formats in several respects. Eskelinen (2004) argues that it is not viable to compare narratives and games on the mere basis that they both contain characters and plots. He draws attention to the possible lack of narratives, since “sequences of events may not form stories” in games (Eskelinen, 2004, p. 37).

Games contain multiple art forms such as storytelling, visual arts, graphics, and music. For this reason, defining games as a form of art itself has been a frequent debate. Some argue that games cannot be regarded as art forms due to the lack of a standalone masterpiece of games and existence of elements such as rules, competition, and interactivity (Tavinor, 2014). Similarly, while one can win or lose a game, such a situation is not a concern in other art forms, such as theatre or cinema, in which one cannot win but can only experience them (Ebert, 2010). In addition to these, in novels, the readers’ right to make choices is suspended; readers can watch the dilemmas of the character but cannot interfere in them. On the contrary, in games, every move the character makes is determined by the players’ choice (Perlin, 2004). Apart from games such as *The Sims*, in which the player plays the role of God, in which the player can determine which “dramatic arc of the experience” (Perlin, 2004, p. 16), what players experience is their agency; however in stories what the readers experience is the character’s agency (Perlin, 2004).

It is not the goal of this dissertation to reach a consensus about whether games are a form of art or not. However, it must be noted that games contain varying degrees of art and employ artists from different backgrounds in their production. On the other hand, some game developers who are defined as “independent developers” (a topic which will be held in more detail in the following sections of this chapter) consider their game as a medium for self-expression and use their games to communicate a personal message to wider audiences. In case of independent developers, the artistic interests of their games can play a role in their decisions.

3.2.1. Game genres

The term “genre” basically corresponds to game categories. However, genre is conceptualized differently in video games with respect to film or literature, since the audience can participate the narrative of games (Wolf, 2010, p. 114). King and Krzywinska (2002) argue that video games can be categorized in terms of four aspects: platform, genre, mode, and milieu⁷. *Platform* refers to the hardware system which game is played on (Apperley, 2006, p. 10-11); *genre* refers to the types of interactions that are available in the game, as distinct from the visual iconography (Wolf, 2001, p. 114); *mode* refers to the “game world experienced by the players”; milieu refers to the “visual genre of the game”. However, some argue that making clear-cut definitions about the genre of games is highly problematic, since each genre may have many subdivisions and genres are constantly evolving (Arsenault, 2009, p. 157). Besides, Apperley (2006, p. 7) argues that the traditional approach in the game genre literature focuses on the “visual aesthetics” of a game and claims that interactive characteristics of games should also be considered while deciding on the genre of the game. Nonetheless, simulation, strategy, action, and role-playing are accepted as the most

⁷ For more information about studies on the classification of video games see King and Krzywinska (2002) and Aarseth (2004).

popular video game genres (Apperley, 2006). Short descriptions of these genres are provided in Table 5.

Table 5
Definitions of Popular Game Genres

Game Genre	Description
Action video games	This genre is composed of two subgenres; first-person shooters (FPS) and third person shooters (TPS). In FPS games, games are played as if the screen were the players' own vision. In TPS games, games are played with avatars that are fully visible to the player.
Role-playing games	In role playing games (RPG), the computer facilitates the players' actions within the fantasy world and actions take place in the fantastic environment.
Simulation games	This type of game generally simulates sports, flying, and driving, and the dynamics of towns, cities, and small communities.
Strategy games	In this type of game, the player has a God's eye-view of the actions taking place. In strategy games, visual aesthetics and photorealistic depiction is considerably higher.

Source: Adapted from Apperley (2006).

Broader classifications of game genres can also be found. For instance, Zarzecki (2017) classified games under ten genres according to their complexity. These are non-fiction games, point & click adventure games, puzzle games, jump n'runs, action-adventure games, action-shooter games, tactical-shooter games, real-time strategy games, turn-based strategy games, and heavy simulation games.

Alternatively, Bernal-Merino (2015) classifies games based on the location of play, gaming platform, distribution channels, and type of market, as illustrated in Table 6.

Table 6

Game Classification Parameters

Location of play	Gaming platform	Mode of distribution	Type of market
Arcade game	Console game	Pre-packaged game	Mainstream game
Desktop game	Computer game	Browser game	Serious game
Portable game	Handheld console game, Mobile game	Pre-installed game	Casual game

Source: (Bernal-Merino, 2015).

3.2.2. Choice of terminology

The interest of this dissertation is on games which are produced, marketed, and played in electronic formats. That is to say, physical games such as board games and card games are excluded from examination. The choice for using the term video games over digital games or electronic games is due to a few reasons. First, the term digital games may bring to one's mind only computer or mobile games and may exclude boxed games played on computers or consoles. Second, as part of the cultural and creative industries, the industry is examined under "video game" title. Third, most of the leading actors in the industry such as the International Game Developers Association and the UK Department of Media, Culture, and Sport use the term "video games" in their reports, and policy-makers often refer to the industry with the same term.

In addition to these, I have observed that the entrepreneurs who are also game developers never use the term "digital game developer" when they are referring to themselves and they do not use the term "digital game industry" when they are addressing the industry. Alternatively, they mostly use the term "game developer" to

define themselves and they used the terms “game industry” or “gaming industry” when they are addressing the industry to which they belong. For these reasons, I have decided to use the term “video games” since it can be more functional in terms of following the debates in the literature and the industrial domain.

3.2.3. Historical development of video games

Outlining the history of digital games can be performed in many ways. In order to understand how video games have reached their current state in the economy and everyday lives, one should consider the developments in computer hardware and software.

Although the video game industry is one of the emerging fields after the ICT revolution, the roots of the industry extend over to the well-established amusement industry (Kent, 2001). There are different approaches regarding the starting point for video games. For instance, Kent (2001) starts from the year 1889, when Fusajiro Yamauchi established the Marufuku company (Japanese card playing company)⁸ to manufacture and distribute Hanafunda. This was followed by the passing of laws for slot machines in 1951, resulting in Service Games (SEGA) entering the US market. Then, in 1958, a physicist invented a table-tennis-like game displayed on an oscilloscope. A few years later, in 1961, American company Raytheon developed a computer simulation for the U.S. Army on the global Cold War Theme⁹. In 1962, Americans invented their first interactive computer game “Spacewar” at MIT (Kent, 2001).

⁸ Later in 1951, Marufuku Co. Ltd. changed its name to Nintendo.

⁹ <http://www.museumofplay.org/about/icheg/video-game-history/timeline> Last access: 27.06.2019

Readman and Grantham (2006) make a more focused analysis by disconnecting the pre-existing traditional roots of the industry. Table 7 shows the main technological era of the video game industry between 1961-2002.

Table 7

Historical Development of the Video Game Industry

Era	Hardware	Notable Games in the Era
Military Era (1961-1971)	Magnavox Odyssey Atari	Spacewar, Pong
First Generation: Home Cartridge (1972-1977)	RCA Studio III Fairchild Channel F Coleco Telstar	Tic Tac Toe
Second Generation: Boom (1977-1981)	Atari VCS/2600 Bally Professional Arcade Magnavox Odyssey 2 Coleco Telstar Arcade Mattell Intellivision	Space Invaders, Asteroids, ET, Astro Battle, Basketball, Shark! Shark!
Third Generation: The Dark Ages (1982-1984)	Atari 5200&800 Coleco Vision Commodore 64 Apple II Vectrex	Pole Poisition, Dig Dug, Congo Bongo, Kung-Fu Master, Space Fury, Polar Rescue, Cabbage Patch Kids Picture Show, Where in The World Is Carmen Sandiego?
Fourth Generation: 8-bit (1989-1993)	Sega Master Nintendo Ent. System Atari 7800 (re-release)	Hang on; Missile Defense 3-D, Super Mario Bros 3, Legend of Zelda, Tetris, Crack'ed
Fifth Generation: 16-bit (1989-1993)	Sega Genesis (upgraded to +32x) NEC Turbographix-16 Super NES Atari Jaguar Gameboy (handheld) Atari Lynx (handheld)	John Madden Football, Sonic the Hedgehog, Keith Courage in Alpha Zones, Teenage Mutant Ninja Turtles, Bonk, Doom, Mortal Kombat
Sixth Generation: 32-bit (1993-1996)	Real 3DO Multiplayer Sony PlayStation Sega Saturn Philips CD-i	Donkey Kong Country, Cosmic Carnage, Virtual Fighter, Ridge Racer, Crash Bandicoot

Table 7 continued

Seventh Generation: 64-bit (1996-1999)	Nintendo 64 Gameboy	Super Mario 64, GoldenEye 007, GranTurismo, Pokémon
Eight Generation: Home Entertainment (1999-present)	Sega Dreamcast Sony PlayStation 2 Xbox GameCube PlayStation Portable	Soul Calibur, Gran Turismo 3, Grand Theft Auto II & Vice City, Halo, Metroid Prime 2, Echoes

Source: Readman, and Grantham (2006).

3.2.4. Development of gaming hardware

The breakthrough of games has been possible under favorable advancements in computers' computational power in terms of software and hardware. The video game industry has witnessed rapid development and technological innovation, which resulted in the emergence of new competitors, new platforms, and new sources of competitive power. Chatfield (2011, pp. 397-399) notes that since the 1980s, consoles advanced and approximately "every six years" a new product arrived. In their examination of the U.S. home video game hardware market, Gallagher and Park (2002) define six technological eras between 1976 and 2002 as it is illustrated in Table 8. Figures 4, 5, and 6 show the dominant hardware for video game play.

Table 8

Six Technological Eras for Videogame Hardware

Generation	Rival Platforms (Manufacturers)	CPU	Bit	ROM
First (1976-1982)	Channel F ^{DD} (Fairchild)*	2 MHz	8	
	VCS ^{**DD} (Atari)	1.19MHz	8	4K
	RCA (Studio)		8	2K
	Odyssey ² (Magnavox)	1.78	8	
	Gamevision (Texas Instruments)			
	Home arcade (Bally)	3.58MHz	8	

Table 8 continued

Second (1980- 1984)	Intellivision (Mattel)*	.5MHz	16	16 K
	Atari 5200 (Atari)	1.79 MHz	8	
	Colecovision** (Coleco)	3.58 MHz	8	8-32 K
	Arcadia 2001 (Emerson)	3.58 MHz	8	8 K
Third (1986- 1990)	NES** (Nintendo)*	1.79 MHz	8	24-32 K
	Master System (Sega)	3.6 MHz	8	32-131 K
	Atari 7800 (Atari)	1.79 MHz	8	52 K
Fourth (1989- 1996)	Sega Genesis** (Sega)*	7.6 MHz	16	64 K
	Turbo Grafix 16 (NEC)	3.6 MHz	8/16	250 K
	Super NES (Nintendo)	3.58 MHz	16	
Fifth (1995- 2002)	Interactive Multiplayer (3DO) *	12.5 MHz	32	660 Mb
	Jaguar (Atari)	26.6 MHz	32	660 Mb
	Saturn (Sega)	28 MHz	32	660 Mb
	Playstation** ^{DD} (Sony)	33.9 MHz	32	660 Mb
	Nintendo 64 (Nintendo)	93.75 MHz	64	100 Mb
Sixth (1999- 2002)	Dreamcast (Sega)	200 MHz	128	1.1 Gb
	Playstation 2 (Sony)	294 MHz	128	5.6 Gb
	Gamecube (Nintendo)	485 MHz	128	1.5 Gb
	Xbox (Microsoft)	733 MHz	128	5.6 Gb

Note. * refers to the first mover, ** refers to the most popular platform, ^{DD} refers to the dominant design.

Source: Adapted and summarized from Gallagher and Park (2002).



Figure 4. Complete Commodore 64 system, developed by IBM in 1982.

Source: <http://www.classiccmp.org/dunfield/c64/index.htm>



Figure 5. Standard Apple II, introduced by Apple in 1977.

Source: <http://oldcomputers.net/appleii.html>



Figure 6. Amstrad CPC, developed by Amstrad in 1987.

Source: https://en.wikipedia.org/wiki/Amstrad_CPC

These advancements in hardware provided for more realistic, cinematic, and complex video games. and therefore, provided more engaging gameplay (Dillion, 2011, p. 136). This era started in the late 1980s with some epic games. To name a few, one can count Captain Blood (1988), Snatcher (1988), Sim City (1989), Populous (1989), Lost Patrol (1990), Civilization (1991), Another World (1991), Lemmings (1991), Street Fighter II (1991), Never Winter Nights (1991), and Doom (1993) (Dillion, 2011). Each of these games had originalities and each introduced a new type of gameplay. For instance, Sid Meier's Pirates (1987) enabled its players the option to choose the historical era that players want to play and to select characters, nationalities, languages,

and special abilities for the characters. Therefore, it allowed players to design some aspects of the game and resulted in a more complex and rich strategy-action type of gameplay (Dillion, 2011). The game was played on the Commodore 64, Apple II, Atari ST, and Amiga platforms.

Each of these iconic games had outstanding features, such as the original storytelling and innovations; e.g., the music of *Snatcher*, the realistic animations of physical actions in the *Prince of Persia*, or more realistic action and physics in the soccer game *Kickoff*. Among them, *Sim City* was different in terms of a lack of victory or loss element as the ultimate goal of the game. Rather, with the role of mayor, *Sim City* players aimed for providing the sustainability of their territory by watching out for the needs of different communities by allocating relevant resources and keeping them happy. *Sim City* offered its own “software toys” to design a better city life with players’ own choices and skills (Friedman, 1995). Another iconic game, *Civilization* (1991), introduced an extensive list of goals for its players to conquer the world. The game became very popular across the globe and turned into a series; the last version of the game *Civilization VI* was released in 2017.

In 2005, new game consoles arrived, such as Microsoft XBOX 360, Sony PlayStation 3, and Nintendo Wii (Daidj & Isckia, 2009). Today, creating such a summary of the era with iconic games will be a more overwhelming task. According to the game magazine *Gamasutra* (2016), now over 500 games are uploaded to the IOS Application Store¹⁰ every day. Besides, the popularization of the games is short-lived and trends change very quickly.

¹⁰Gamasutra website
https://www.gamasutra.com/view/news/267645/Over_500_games_now_submitted_to_iOS_App_Store_every_day.php Last access: 29.06.2019

3.3. Differences of the Video Game Industry from Other Industries

Video game industry differs from other industries in terms of the characteristics of market demand, production processes, competition and innovation dynamics, interaction between users and producers and market distribution channels. These factors play a decisive role in entrepreneurial success. Therefore, in the following sections these issues are introduced briefly.

3.3.1. Nature of the demand

Acknowledging the characteristics of creative industries may aid the understanding of the industrial dynamics of video games as well. One of the typical characteristics of demand for creative and cultural products is their uncertain nature (Caves, 2000). This is because of the subjectivity of the market acceptance of a product. It can be challenging to come up with practical market strategies, since video games intrinsically appeal to consumers' taste, rather than fulfill their needs. Prediction and the creation of new game tastes are one of the main challenges for game developers.

Moreover, in creative industries entrepreneurship, traditional approaches of neoclassical economics do not work due to information gathering problems on the producer and consumer sides. For the customers of creative industry goods, doubts about originality, the meaning of symbols, subjective judgments of quality, lack of reliable information about alternative products can be problematic (Purnomo & Kristiansen, 2017). On the producers' side, the under-established state of the market with missing industrial organizations, the under-organized state of industry associations, number of individual freelancers, and lack of information about the competition of the market are considered as challenges of a full comprehension of the market. Therefore, grasping the market size, identifying competitors, and recognizing business opportunities impose themselves as challenges for strategic decisions (Purnomo & Kristiansen, 2017). Further, Purnomo and Kristiansen (2017, pp. 11-12) emphasize that "Inconsistencies, spontaneity, and unpredictability of art markets tend to defy rational explanations and predictability".

In the video game industry, part of the economic value is created by the communities of users (Burger-Helmchen & Cohendet, 2011). Game companies sometimes collaborate with *modders* to ease the unpredictability of demand towards their games (Postigo, 2007). Modders are defined as game players or fan programmers (Jenkins, 2006) who have the motivation and creative and technical skills to manipulate game content toward their taste by using their access to digital toolkits of the game (Arakji & Lang, 2007). Modding can be done via altering the game's media files to change and add music, scenery, and characters to the original game content (Arakji & Lang, 2007).

3.3.2. Platforms

The term “platform” in the video game context refers to “hardware and software systems that run the game” (Schweizer, 2014, p. 41). Platforms also indicate the soft and material limits of the game and also correspond to the hardware choice. Games are played on various platforms such as PC, consoles¹¹, smartphones, and tablets. There are two major mobile game platforms: IOS for Apple devices and Google Play for smart devices using Android operating systems. There are also PC gaming platforms known as proprietary games, such as Steam GoG, Gamergate, Humble Bundle, Amazon, U Play, Origin. These are digital distribution platforms for PC games in which independent developers can sell their games and build communities in the scope of a contract with the platform owners.

Recently, games have been developed in platforms based on virtual reality and augmented reality technologies. In these types of games, players experience a different reality by putting on VR/AR headsets and holding a controller similar to a joystick. Such games can be also considered as console games since they require special

¹¹ For instance, Play Station, Nintendo or Xbox. These are special hardware which are integrated to a TV system.

equipment. Some of the popular hardware for this purpose are Oculus Quest, Samsung Odyssey+, Oculus Go and Valve Index¹². In addition, there are also browser games which can be played without requiring any special hardware; such games include games played on social media and web-based applications.

Although some game engines allow porting of the game into different platforms, the initial game platform is decisive in the content and engines of the game. It is often impossible to play a triple-A game¹³ on mobile devices due to the necessary technical requirements (such as graphics processors) to run the game. As a result, the game consumes the battery of the mobile device or causes problems such as heating. Therefore, game developers face a tradeoff between game contents and hardware requirements. Besides, platform choice is an important first step in the game design because each platform requires different skill sets, software expertise, time management, and budget. While developing a casual game for mobile platform may require two developers to work for a month, developing a casual game for a PC platform, such as Steam, may require the work of at least 4 person's labor for 6 months to a year.

According to the survey of IGDA (International Game Developers Association) in 2016, with game developers mostly based in United States, 75% of the respondents regarded the PC as the most important platform. Following PC, 65% of respondents regarded consoles and 50% of respondents regarded mobile platforms IOS and Android are third most important platforms (IGDA, 2016).

¹² PC Gamer Online Magazine Website. <https://www.pcgamer.com/best-vr-headset/> Last access: 27.07.2019

¹³ A triple-A game is a definition used for high quality games with high marketing and development budgets (Kent, 2001; Fields, 2010).

3.3.3. Competition and innovation dynamics

The video games industry is composed of game publishers and game developers. The industry also consists of two parallel sectors: games on consoles and games on computers. Publishing of computer games and online games publishing are classified under code 5821, according to European Industrial Activity classification in NACE Rev 2¹⁴. Publisher companies are those who undertake the marketing and distribution of games in return for the ownership of the games. Publishers are specialized in terms of platforms. For computer games, a well-known example is Blizzard, which produced and published the epic game World of Warcraft. However, some triple-A companies also launch their mobile publishing companies, for example, EA launched Chillingo to penetrate the mobile market. The most important mobile publishers are Machine zone Inc., Supercell, King, Zynga, and Noodle Cake.

The video game industry is often characterized by abundant market opportunity, rapid change, industrial growth, network externalities, and oligopolistic competition between game hardware producers, especially for consoles (Williams, 2002; Daidj & Isckia, 2009). The oligopolistic competition stems from the fact that production of gaming hardware requires a high amount of financial investment. Another important aspect of game development stems from the irreversibility of choices of game developers regarding which platform to adopt, especially for console games, since a game produced for a particular console cannot be operated on other consoles (Daidj & Isckia, 2009). An empirical study shows that game developers are less likely to release their games in crowded console platforms in which other developers have a high presence and in platforms with few developer connections; rather they are more likely to release their games in new console platforms and platforms with “market dominance” (Venkatreman & Lee, 2004, p. 877).

¹⁴ <http://www.cso.ie/px/u/NACECoder/NACEItems/searchnace.asp> Last access: 03.06.2019

Gallagher and Park (2002) argue that technological innovation is necessary but not sufficient to become a leader in the video game industry. Similarly, a first-mover advantage can only be sustained if first-mover firms “use their time to develop a network of complementary products” (Gallagher & Park, 2002, p. 80). The development of the industry is interpreted as “a typical Schumpeterian regime, but in a much more dynamic sense” (Gallagher & Park, 2002, p. 80). Besides, the competitive power of a firm in this industry resides also in the learning capabilities and internal innovations in firms, which “is in line with the resource-based view” (Gallagher & Park, 2002, p. 80).

Interdisciplinary, interactivity, and velocity were considered as the main characteristics of the video games industry (Cadin & Guérin, 2006). New technological developments, frequent entry and exit of firms, specialization of activities in the value chain, power relations between console/platform owners, and the existence of “super developers” constitute the major themes in the video game industry (Readman & Grantham, 2006). Moreover, the speed of technological change shows itself as another aspect of competition since the pace for demand for new innovative products is slower than the pace of lowering costs (Cadin & Guérin, 2006).

The conceptualization and measurement of innovation are problematic in the cultural and creative industries. Innovation in creative industries is covered under “soft innovation” (Stoneman, 2010), “aesthetic innovation” (Eisenman, 2013), or design-inspired innovation (Utterback et al., 2006). Some studies show the effect of the national innovation system on innovation performance of the video game industry. For instance, Storz (2008) acknowledges that innovation in the video game software industry is enabled through recombination of dominant and peripheral competences, by extending the scope of an existing institution to a new one, or by transferring an existing institution to a new use. The structure of the video games industry is often considered as at the state of infancy. This is due to the fact that the relative position of each party in the value chain (hardware producers, game developers, publishers, software producers) is not stabilized.

Innovation in video games can be achieved via integration of the design, technology, and content dimensions (Casper & Storz, 2017). Innovation also “depends on the ongoing pursuit of novelty, which is generally the output of organized activity rather than individual genius” (Jones, Svejenova, Pedersen & Townley, 2016, p. 754). Besides, innovation in the video game industry requires to move beyond market demand, since completely demand-led production may generate a boring game for customers, which in turn contradict the main idea of gaming (Chatfield, 2011).

3.3.4. Production

Production of video games is often defined with the verb “development”, as in product development or software development. The structure of the development process of a game depends on its scale and complexity; for instance, triple-A games are the most complex games and therefore require the longest development process as they may contain more development phases than a mobile game. Yet, typically, the main phases in production of games are concept development, design, production, and testing. The conceptual phase is the idea generation phase in which the overall concept of the game is determined and questions like what kind of a game will be produced, for which platform the game will be developed, what would be the main features of the game are answered. The output of the concept development phase is ideally a game proposal document which also covers market analysis, technical issues, proposed budget, and description of the gameplay (Egenfeldt-Nielsen, Smith & Tosca, 2008). After the game proposal is completed, the document is presented to the board member or decision makers in the company for negotiation and reaching a mutual agreement. If relevant parties approve the proposal, the process continues with the design phase. In the design phase, game specifications in the proposal are elaborated and players’ interaction with the game is designed. Ideally, the output of this process is the “design document” which “consists of text, illustrations, mockups, concept drawings, and other details such as lists of objects in the game” (Egenfeldt-Nielsen et al., 2008, p. 18). The design document is also used for determining the game engine that will be used for the game.

Almost in all types of games, the development of a video game is aided by game engines. Game engines include systems for graphics, physics, artificial intelligence, and similar functions that might be necessary for game development (Wesley & Barczak, 2010). The game engine determines how units in the game will respond to commands from computers or controllers. They are also called “middleware” due to their intermediary role between the computer and players. The game engine “provides the basic architecture of the game but not the concrete content” (Egenfeldt-Nielsen et al., 2008, p. 18). With the game engine, the video game’s artistic, cultural, and narrative expressions are regulated (Bogost, 2006, p. 56).

The game engine also delivers a sense of gameplay, which is one of the most important factors for a game’s market success. Some game genres are named after the adopted game engine, such as First-Person Shooter (FPS) engines and FPS games. FPS engines enable players to see the environment with the eye of the shooter in the game; players can see the tip of the shooter’s weapon, shooter’s feet, the limited sight of the rest of the shooter’s body, and the surrounding environment. While developers can develop their own engines, most of them use existing engines by licensing. The most popular game engines are The Unreal Engine, Unity3D, Game Maker: Studio, CryEngine. In addition to game engines, other complementary software is used to construct texture, sounds, or graphics in the game. For these purposes, Maya and 3D Studio Max are the most popular software choices. Game mechanics, on the other hand, is a term used “to describe how players interact with rules, and as more formal properties of a game such as game goals, player actions and strategies, and game states” (Sicart, 2008, para.23).

The third phase in game development is prototyping. In this stage, the goal is to make a playable version of the game with its main features. Prototypes determine whether the game project is worth pursuing (Egenfeldt-Nielsen et al., 2008). The prototype is the showcase of the game and important for developers who aim to find financial resources, publisher deals, and investors. After prototyping, the process continues with the actual development. In this stage, there are the first testing (alpha) and second testing (beta testing) phases. In alpha testing, the game is cleaned from its bugs and other technical problems. The problems identified in the alpha testing phase are then

dealt with the beta testing phase with beta-testers. The beta version is the “real world” version of the game (Egenfeldt-Nielsen et al., 2008, p. 19). Beta testers can be members of the community of the game, other game developers, or people with game knowledge. The crucial point is to select beta testers from the targeted profile of consumers. Beta testers can either volunteer for testing or they can test the game in return for small favors such as a free copy of or early access to the game. Alternatively, beta testers can be casual friends of the developer team¹⁵. Beta testers report problems and observations about their experience while playing the game. By this way, developers gain feedback from users and make final changes if necessary and later put the game on the market. Testing of the game with beta testers provides a fresh look on the games and may bring details which may have been overlooked by developers due to the close and prolonged interaction with the game. The process described above is not generic for all companies and games. Game companies often come up with new forms of this process and different production life-cycles are possible (Ramadan & Widyani, 2013).

Advancements in game platforms may also change the course of game development. For instance, the famous PC game platform Steam introduced an interface in which community in the Steam show their support on a game in the development phase. If a game gets enough support from the community, it is said that the “game gets the green light”; it gives a signal to developers to complete the game and also that the game is qualified to be in Steam stores. Interfaces like these, can help independent developers to shape their market strategy.

3.3.5. Creativity in video games

Moran (2010) argues that individual and societal purposes of creativity are likely to be complementary rather than competing. He states that “From the societal perspective,

¹⁵ One of the entrepreneurs in the sample of this dissertation reported that they approach people in Starbucks Café to test their game in return for buying them a coffee.

creativity's role is an improvement; from the individual perspective, creativity's role is the expression". Creativity pulls society forward to a new stable state (Moran, 2010) and involves moving beyond what exists now, using resources brought from the past to devise potentially better options for the future (Craft, 2003). Creativity is seen as a way of handling life's challenges for those without power (Cropley, 1996). Advancements in technology affect creativity since they change "how people can express themselves" (Moran, 2007). Management scholars consider creativity as an individual ability or trait to be assessed and harnessed by society to make great leaps forward in productivity, technology, and innovation (Stonehouse & Minocha, 2008).

Creativity has a particular importance in the video game industry and can be decisive in organizational structure and management approach of firms and Lampel, Lant, and Shamsie (2000) address the managerial and organizational challenges of firms in cultural industries. According to them, managers are often faced with five opposing imperatives. The first one is the conflicting concerns of artistic values and market economics of cultural goods. The second polarity draws on the need for the balance between the novelty and familiarity of the cultural product. They state that "while consumers expect novelty in their cultural goods, they also want novelty to be accessible and familiar" (Lampel et al., 2000, p. 266). Third, existing market demand should be followed but imagination to influence consumers and transform the market is also needed. Fourth, it can be crucial to figure out the origin of value in cultural goods whether it stems from the individual or the system (Lampel et al., 2000). Lastly, Lampel et al. (2000) address the trade-off between the flexibility and coordination of firms. They argue that managers need to consider the scale advantages of integrated coordination but must also allow room for "creative freedom" (Lampel, 2000, p. 266). The tradeoff between flexibility and scale advantages becomes visible in two organizational structures in the video game industry; namely, triple-A companies and independent game companies. While triple-A companies benefit from scale advantages, they lack creative flexibility. On the other hand, independent companies have creative flexibility but lack scale advantages by not having control and coordination over the market distribution of their games. Upon recognition of the

growing independent games both in mobile and PC platforms, some triple-A companies have started to establish their own game studios to experiment with creative game ideas and tap into the indie game market.

3.3.6. Factors for firms' success

The video game industry is also called as “chart businesses” that refers to the business which live or die is determined by being the best in the market for a certain period of time (Jeffcut & Pratt, 2002, p. 228). In other words, success can be short-lived. Game development requires interdisciplinary teamwork. Interdisciplinary refers to the indistinguishability of engineering and design in the production of video games. Video games require dialogue and cooperation of engineering and artistic specialties during a game's production. The video game industry essentially requires a combination of capabilities to effectively manage managerial tension (Wu & Wu, 2016). Camerani, Masucci, and Sapsed (2015) find that combining diversified sets of knowledge is the primary success factor for digital-based creative industries. Besides, positive network externalities at the local level and investing in managerial resources also increase the survival possibilities of businesses in the video game industry (Cabras et al., 2017).

Interactivity, in terms of user-consumer interaction and the relationship between game players and developers during the co-creation of games, comes to the forefront in video game development (Cadin & Guérin, 2006). The collaboration between players and developers during the production of the game can be possible due to the low information asymmetry between developers and user groups and their shared socio-cultural background. In most cases, current developers are former players.

Another success factor in the video game industry is the timing of the market release of games. According to Cadin and Guérin (2006) a very large proportion of all purchases involves year-ends or summer holidays; in other words, games are often consumed seasonally and have a short life-span. Therefore, release dates became critical for profit making.

The study of IGDA revealed that the future growth of the industry is attributed to advancements of game design, diversity of content, advancement of storytelling and funding for game development (Weststar & Leagult, 2016). However, the expected success factors can change between countries such as in Sweden, access to capital and human resources are considered as main threats to the evolution of game developers (Swedish Games Industry, 2018).

3.4. Recent Trends in the Video Game Industry

Video games compete with other leisure activities in terms of time and willingness to spend money such as going to movies, theaters, watching TV, or casual socializing. According to the recent report of Entertainment Software Association (ESA, 2019), 65% of adults in America play video games and 70% of parents have a child who plays video games. 60% of the adult players prefer smartphone as the main device to play video games and they mostly play casual games. 52% of the adult players play games after work hours and they spend 4.8 hours a week to play games with online; 3.5 hours to play games with other people. The average age of the most frequent buyer of video games is 33, constituted by 54% males and 46% females (ESA, 2019). These numbers provide a strong case for gaming to become a mainstream activity ever than before.

The most obvious trend in the video game industry is the digital distribution of games. Figure 7 shows that the share of games in physical format has been decreasing rapidly. On the demand side of the industry the most notable development is the changing profile of players. Previously the industry was dominated by players who spend long hours for gaming and spare a considerable budget for purchasing games and game-related supplies such as controllers, high CPU computers, and graphics cards. With the 2000s, the typology of players has started to change. There are multiple kinds of players at varying age groups and different game playing habits. The biggest player segment is called casual gamers, referring to those who are willing to commit little time and few resources toward playing video games and dislike difficult games (Juul, 2010, p. 8; Wesley & Barczak, 2010).

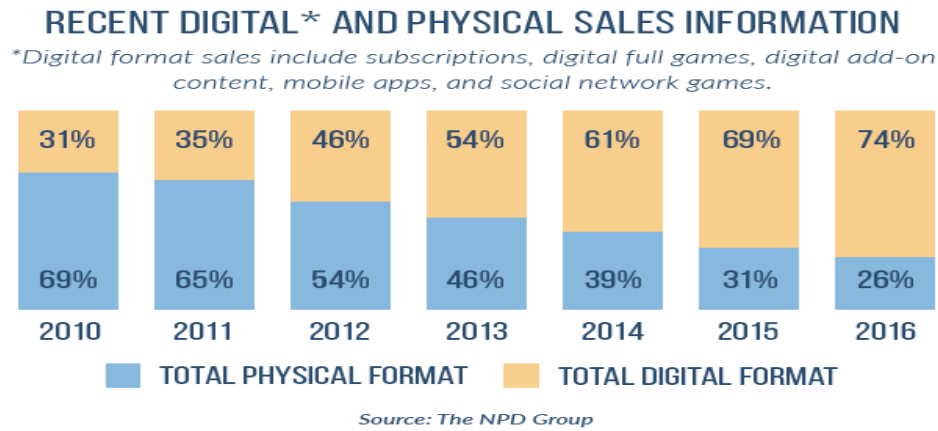


Figure 7. Market Trends in the Digital Game Industry.

Source: Entertainment Software Association (April 2017) “Essential Facts about the computer and video game industry”

Casualness in games stems from the relatively short-term commitment to games, less complex hardware and controllers, and less accumulated knowledge about how to play a game (Raz, 2014). Casualness in the context of video games refer to a specific genre of games, to a method of playing games, to specific platforms, and to specific player profiles, such as “casual player” or “casual gamer” (Raz, 2014, p. 135). The difference between hardcore players and casual players also indicate a distinctive choice of games. While hardcore players prefer more difficult games with overly technical graphics, casual players desire “quick fun”. Therefore, they prefer easier games, since they generally have a low level of knowledge of games (Juul, 2010, p. 29). Downloadable casual games expand the audience for video games by reaching beyond young male players (Juul, 2010). Although an innovation itself, some argue that downloadable games have turned out to be a disappointment for game developers since downloadability of games has also created thousands of clones of successful games and therefore allowed for moderate innovative games, in which games compete with clones of each other rather than with high-quality games (Juul, 2010). Hence, local adaptations of globally successful games and franchising practices have expanded the market even more (Bernal-Merino, 2015).

The wide adoption of casual games and their hegemonic position in the video game industry in terms of revenues stems from their wide attraction for customers. Two of the most popular examples of casual games with worldwide success are Angry Birds developed by Rovio Entertainment in 2009, and Candy Crush Saga, developed by King in 2012. While Angry Birds was played by half of the world's population, Candy Crush was played by 263 million active players monthly by 2013¹⁶. Since casual games are generally non-violent (Raz, 2014, p. 137), all family members can play these games without being concerned. Casual games also include mimetic games; games which are played on home consoles such as Wii or XBOX and get family members to socialize via enabling multiple players simultaneously.

Another trend of the video game industry is the rising of independent game development. Independent development has become possible with technological change (availability of digital distribution channels and internet) as an extension of digital distribution channels and the emergence of crowdfunding platforms. There are several reasons why independent game development has become possible and popular. Martin and Deuze (2009) explain the emergence of independent game development with changes in technology, markets, industry, organization structure, occupational careers, and policies governing them. Digital distribution has changed the preference of customers in favor of independent games. In blockbuster games, graphics and sound effects hold result in large file sizes, which affect the downloading speed and operation of the device running them, requiring specific hardware. Technological change has favored indie games since they occupy a small memory.

The term “indie” is originally derived from the cinema industry. Although there are numerous interpretations of the indie developer, the distinction between triple-A and indie developers is based on three standpoints: ownership, consolidation of market

¹⁶<https://expandedramblings.com/index.php/how-many-people-play-angry-birds-infographic/>
access: 27.06.2019

distribution, and game characteristics (Parker, 2011). Independent developers generally have small developer teams and due to their small size and budget, for these reasons independent developers can be generally found in the mobile game market. However, team size is not a necessary and sufficient condition to identify a game developer team as independent developer (Gril, 2008).

Independent developers are self-funded, self-governing companies with no attachment to publishers for their games' distribution. Indie development ensures an independent decision-making environment without any external pressure from outside and allows the revelation and maintenance of the creativity of the game.

In his blog post, Dutton (2012) collected the opinions of popular indie developers. Among them, the definition made by Adam-Saltsman was worth noticing:

To me, an 'indie game' is just a game where the game makers didn't have to make compromises for anybody. They put their audience/work/ego first, they made something interesting and meaningful, and the audience can see the kind of personal touch of an auteur in there - whatever that might mean for games.

One can also identify an indie developer by looking at the characteristics of the game, especially its art content. This follows the logic that since indie developers are free from external pressure in the development phase, they are likely to produce more creative games with more art content. Triple-A companies are those who produce high-quality games, generally designed to engage players in the game for long hours, such as Electronic Arts, Ubisoft, Nintendo, and Sony. In triple-A companies hundreds of people work with towering budgets to create a high-quality game in terms of graphics, motions, and sounds, which is why triple-A companies' ultimate concern is market profit. In other words, they can forgo originality or other art contents for the sake of profit. Indie developers use their games as a medium to reach out to wider audiences and communicate their personal messages.

3.5. Chapter Summary

Video games are composite products of technological advancements in hardware and software, culture, marketing, and human inclination of play. Games differ from play in terms of their rule-based nature. As part of creative and cultural industries, the video game industry carries some challenges and differs in terms of demand characteristics. The industry has an uncertain demand profile, changes very often, and following the market and competitor can be problematic.

Games in digital formats has been increasing and market distribution of games have been segmented among platforms. Each platform has its own type of producers, consumers, technological infrastructure, skills, and competitive dynamics. Competition is centered around keeping up with technological change, timing, and gaining players' attention. In console games market, oligopolistic competition can be observed; while in mobile game market competition takes place between vast number of firms and mobile games compete to stand out from each other. The creativity in games makes the sector innovative but the conceptualization of innovation is not well established.

This chapter shows that wide acceptance of smartphones contributed to the growth of mobile games and created casual players and casual games. A relatively shorter time of production, fewer budget requirements, a wide consumer base, and a relatively high acceptance for casual games by player community made mobile game market a viable option for many start-ups. The growth of the mobile market also gave birth to clones of games and increased the competition among mobile game developers. Also, the growth in the mobile market piqued the interest of multinational game companies so they started to penetrate this market by establishing their studios or by acquiring independent developer studios. By this way, companies have found themselves to compete with triple-A companies in addition to the companies already existed in their market segments. In such a competitive environment, agreeing with publishers may become a viable option for independent developers. On the other hand, the workforce in the video game industry prefers autonomy and tends to prefer to be independent to

make room for self-expression and creativity. This imposes a tension between creativity and market survival.



CHAPTER 4

METHODOLOGY

This chapter describes the methodology used in exploring the phases of the entrepreneurs' entrepreneurial journey and their decision-making approach in the video game industry in the context of METU Technopark. Section 4.1. discusses the role of epistemology and ontology on the research methods. Section 4.2. elaborates on the advantages and disadvantages of the alternative inquiry methods. Section 4.3. explains the ontological and epistemological standing of this dissertation. In Section 4.4 the evaluation criteria of qualitative studies are presented. Section 4.5 reports the steps taken to ensure the trustworthiness of this study. Section 4.6 briefly explains the grounded theory approach and shows how the grounded theory approach is used in management and organization studies. Section 4.7 explains the data sampling for the present study, while Section 4.8 illustrates how the data is accessed. Section 4.9 provides the ethical considerations of this study. Section 4.10 dwells into data collection process and finally Section 4.11 provides the participant demographics and coding framework used in this study.

4.1. The Method Choice: Epistemological and Ontological Aspects

Morgan and Smircich (1980) argue that the researcher's ontological and epistemological stand determines the choice of method in social sciences. In order to clarify the relationship between ontology and epistemology, one can look at a perspective which accepts objectivism and subjectivism as two opposite ends in a

continuum as illustrated in Burrell and Morgan (1979). In this case, objectivists see “the social world as a concrete structure” (Morgan & Smircich, 1980, p. 493). Such a view about the social world (the ontological stand) influences ideas about how knowledge is generated and what knowledge contains (i.e., the epistemological stand) and also which knowledge is worth pursuing. By extension, researchers who adopt an objectivist view on the social world would prefer to look at the world to understand the relationships between structures in the social world. This approach presumes social reality as “social facts” and draws a positivist stand in epistemology (Morgan & Smircich, 1980). At the other end of the continuum, subjectivists do not consider the social world as a single reality equally valid for its members. Rather, they see the social world as multiple realities which may vary according to those who experience it. Such considerations about the social world describe an epistemological stand which focuses on the relation between the social world and the individual. Researchers in this view focus on how knowledge is created and interpreted by individuals or groups; therefore, they draw a phenomenological stand (Morgan & Smircich, 1980).

Early thinking over the epistemological and ontological aspects can enhance the consistency of the research. However, it can be problematic to arrive at a conclusion about research techniques based on the differences between ontological and epistemological stands. Morgan and Smircich (1980, p. 498) warn us that “although it is tempting” to match research techniques with certain standings on epistemology, ontology, and human nature, it may open the way for a biased conclusion since the same research technique can be used with different purposes by researchers who have different views (objectivist or subjectivist) on social world. By this way, they emphasize the role of research purposes on the method choice.

Creswell (2007) underlines the effect of the researcher’s “philosophical assumptions, set of beliefs and worldview” which not only affect the methodological choice, but also the decision to choose a particular approach within the qualitative inquiry, the design of the research, and writing of the qualitative inquiry (Creswell, 2007, p. 15). In addition to the researcher’s stand on ontology and epistemology, Creswell (2007, p.

15) adds that “axiology, rhetorical and methodological assumptions”, also affect the choice of approach in qualitative research.

Qualitative analysis cannot be put into a single category; rather it differs according to the purposes of the researchers (Dey, 1993). Creswell (2007) groups different approaches of qualitative inquiry under five categories, which are narrative research, phenomenology, grounded theory, ethnography, and case study. This “plurality in perspectives” (Dey, 1993, p. 1) impedes standardization of the research and analysis procedures in qualitative inquiry. Essentially the choice of which perspective to adopt is left to the researchers. So qualitative analysis is often described as a craft (Patton, 2002). Similarly, Denzin and Lincoln (2005) use the analogy of “bricoleur” and “quilt-maker” for the qualitative researcher since qualitative analysis enables improvisation while bringing together different pieces of a complex situation to convey a meaning. Even so, there are other factors along with the researcher’s choice which direct the method to be utilized; i.e., the data set and the purpose of the research, which are considered as the main elements of any choice regarding analysis procedure in qualitative research (Dey, 1993; Silverman & Marvasti, 2008). Figure 8 illustrates elements that influence the choice of research method.

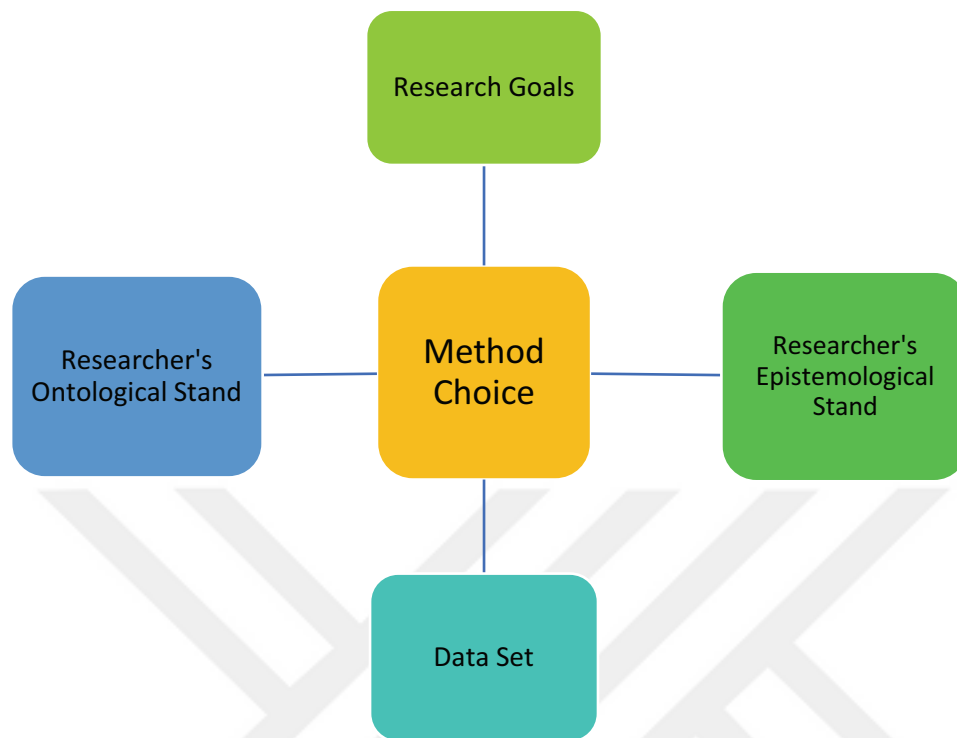


Figure 8. Primary factors playing a role in method choice in social science inquiries.

4.2. Why Qualitative Methodology? Advantages and Disadvantages

The essential difference between quantitative and qualitative research lies in the different characteristics of data (Dey, 1993; Miles & Huberman, 1994). Dey (1993, p. 11) explains that quantitative analysis is used for data which is measurable with an agreed standard, and therefore quantifiable. Denzin and Lincoln (2005, p. 10) state that “qualitative research focuses on qualities of entities; on processes and meanings that are not experimentally examined or measured (if measured at all) in terms of quantity, amount, intensity or frequency”. Dey (1993, p. 12) states that “Whereas quantitative data deals with numbers, qualitative data deals with meanings”. Miles and Huberman (1994, p. 9) describe qualitative data as “data in the form of words” which needs processing by the researcher. However, the form of qualitative data is not limited to words or written material. In addition to interviews with open-ended questions, notes from field observations and written materials in the form of reports, memoranda,

official publications, artistic works, and photographs can be accepted as sources of qualitative data (Patton, 2002, p. 4).

Before closing on the differences between the two methodologies in terms of the data characteristics, it is necessary to emphasize that the discussion above does not mean that numbers do not convey meaning. Dey (1993) addresses the reciprocal relation between numbers and meaning in social sciences by showing how numbers can include meaning and how meaning can be enriched by numbers to make a point on the transformation process of meaning into numbers. He explains that numbers are derived from the iterative transformation of meanings into concepts and concepts into indicators. What he argues is that during such a transformation process a substantial amount of meaning is reduced into numbers for the sake of observation and measurement (Dey, 1993, p. 3). Therefore, relying on numbers to obtain meaning may not be sufficient.

Dey (1993, p. 15) argues that a biased approach towards two types of data which praises quantitative data for its objectivity and reliability and considers qualitative data as subjective and unreliable creates an “unnecessary polarization”. Rather, he suggests using the two kinds of data in combination in research. Essentially qualitative and quantitative research are two approaches to scientific inquiry “rather than a set of techniques” and their “appropriateness” depends on the studied phenomena (Morgan & Smircich, 1980, p. 499). Besides, the numerous different ways of application of qualitative inquiry constrain us to make a sharp distinction between two methodologies (Silverman & Marvasti, 2008).

The different characteristics of data are not the only separator between the two methodologies. According to Flick (2009, p. 14) quantitative and qualitative research are concerned with different ideas. Flick (2009) claims that the qualitative research approach has emerged out of the limitations of quantitative approaches. Flick’s argument can be seen as part of a view which sees the two methodologies as complementary. A quantitative approach is used for “isolating the causes and effects” and to make generalizations and general statements about the observed phenomena

(Denzin & Lincoln, 2005), while the qualitative approach makes rich descriptions of the social world which in turn allows capturing more detail about individual's point of view.

The need for a qualitative analysis occurs when researchers need further and/or detailed explanations of a problem, researchers want to “empower participants” to voice their opinions, to understand the context which surrounds the problem, to follow up a quantitative study to explain causal mechanisms in a theory, “when existing theories are inadequate or not existing,” or when existing statistics do not fit with the complexities of the problem that the researchers want to explain (Creswell, 2007, p. 40). The qualitative methodology provides an alternative to bring scientific explanations to phenomena with non-quantifiable data units. It allows researchers to look at the subjects of the phenomena to obtain possible explanations rather than leaning on the accumulated knowledge and existing research. By this way, it promises a comprehensive method beyond the imagination and assumptions of the researchers. The outcome may corroborate an existing theory and/or may result in new and/or additional discoveries about why or how a phenomenon occurs. “With qualitative data, one can preserve chronological flow, see precisely which events led to which consequences, and derive fruitful explanations” (Miles & Huberman, 1994, p. 1). Qualitative methods are used when a complex issue is desired to explored, to de-emphasize power relations, hear the silenced voices, to follow-up quantitative studies by revealing linkages in the causal models (Creswell, 2007, p. 40). Qualitative methodology is preferred in cases where researchers lack quantifiable data and indicators.

Qualitative and quantitative analysis also differ in the techniques used for data collection. In qualitative inquiry, data collection is not limited to a certain set of questions and/or variables (Silverman & Marvasti, 2008, p. 50). Researchers can decide on which questions to ask rather than applying a question set from previous studies. They can change questions during the interview. Even the research question can change in qualitative inquiry.

One of the reasons for the existence of numerous approaches to the qualitative inquiry is related with the different arguments between scholars about the role of theory in qualitative research (Gehman, Glaser, Eisenhardt, Gioia, Langley & Corley, 2018; Silverman & Marvasti, 2008). Silverman and Marvasti (2008, pp. 51-52) argue that applying the theory “directly” into the qualitative research allows data to be grounded during the data collection and analysis period and suggest that it does not deter inductive theorizing. In Gehman et al. (2018, p. 287) Eisenhardt asserts that inductive theory building and deductive theory testing are “two sides of the same coin”. In the same dialogue article, Langley argues that being theory-free in the inductive method is not possible; a richer understanding of the world can be achieved by connecting to prior theory.

The emerging nature of qualitative inquiry requires a data collection process which is sensitive to the people and places under study (Creswell, 2007). As an extension to this, engagement of the researcher with the research subject and the social setting of the problem, and utilization of multiple sources of data are deemed necessary (Creswell, 2007). Besides, data analysis process in qualitative studies should allow for emergence of patterns and themes from data (i.e., inductive reasoning). Reporting of the results is performed in a way which uses the voice of participants while ensuring complex description of the problem, and the extension of the findings with existing literature (Creswell, 2007).

Qualitative research works with a smaller sample than quantitative research. It captures more detail about the studied problem than in quantitative research; however, qualitative research remains weak in terms of the scope of the cases which makes the generalizability of the results problematic (Silverman & Marvasti, 2008). Unlike quantitative research, in qualitative inquiry, the processes of data analysis, and writing of the results often overlap (Silverman & Marvasti, 2008, pp. 52-53).

Qualitative and quantitative methodologies do not always differ in terms of the output of the analysis. Qualitative analysis may bring a quantitative interpretation and/or a quantitative analysis may open for a debate on the nature of a social phenomenon. In

other words, quantitative and qualitative methods can be considered as complementary (Silverman & Marvasti, 2008, p. 57). The qualitative and quantitative methodologies have been integrated into scientific research simultaneously, known as mixed-method research (Venkatesh, Brown & Bala, 2013; Creswell & Creswell, 2017).

4.3. Ontological and Epistemological View of the Author

The aim of this dissertation is to understand how entrepreneurs in the video game industry in METU Technopark make their decisions when faced with the surrounding uncertainty to enable the survival and growth of their businesses. In order to frame this problem, this dissertation benefits from effectuation theory. Nonetheless, I tried to be “open-minded” when I went to the field (Bryant & Charmaz, 2007).

Although I think that it is not useful to draw a dichotomy between realism and constructivism here, I consider myself closer to the idea that reality is a socially constructed phenomenon. Ontologically, this dissertation has a stance towards a reality that is essentially subjective and multiple and could be experienced differently by individuals. Therefore, I pay attention to “quotes and themes in words of participants” (Creswell, 2007, p. 17) as evidence in this study. However, what I aim for with this research is to explore an existing theory on entrepreneurial decision-making (i.e., effectuation). What I hope is to arrive at a conclusion about some common patterns based on the unique experiences of the research participants, which can be counted as a deduction effort. More clearly, this dissertation examines how effectuation theory performs in terms of capturing entrepreneurial decision-making in the real world in the case of the video game industry and explores, if any, missing concepts that can be linked with decision-making approaches. In this way, this research can contribute to the development and refinement of effectuation theory. To elaborate and extend an existing theory is not considered contrary to the main rationale of grounded theory method (Strauss & Corbin, 1998, p. 12).

The theory-method fit is considered as a “fundamental” point for scholars who undertake qualitative research (Gehman et al., 2018, p. 298). By acknowledging this

point, I detected a similar standing between the theoretical lens and methodology of this dissertation in terms of my ontological and epistemological viewpoints. The participants in this dissertation have been underrepresented in the scholarly literature. This dissertation, by design, cares about the voice of the participants. Therefore, this dissertation calls for a qualitative methodology in terms of its purpose and as a form of intellectual effort. This dissertation adopts an inductive logic to fulfill its goals, by giving priority to data to shape any generalizations (Creswell, 2007). According to the categorization of Tesch (1990), as cited in Miles and Huberman (1994, p. 7), grounded theory can be considered as a viable method for data interpretation for this dissertation since the purpose of this dissertation focuses on the “discovery of regularities” (in this case to explore on the decision-making approaches of entrepreneurs in METU Technopark) by “identification and categorization of elements and exploration of their connections”.

4.4. Evaluation of Quality in Qualitative Research

Standardized evaluation criteria are necessary for any scientific study. Although quantitative research has more established criteria in terms of evaluating the quality of work, the criteria for evaluating the quality of studies in qualitative methodology is also developing. Flick (2007) argues that the quality debate has shifted from which methodology has the superior evaluation criteria over the other and has moved to how qualitative research is practiced.

The potential point of departure when assessing the quality of qualitative research could be the technical procedures implemented during the research process. Alternatively, research outcomes could be another starting point (Flick, 2007, p. 19). Rigor about data collection, the privacy of participants’ information, respect for different perspectives, and equal representation of the perspectives are considered as quality indicators as much as ethical concerns (Flick, 2007).

Flick (2007) argues that traditional measures of quality in quantitative studies such as validity, reliability, and objectivity may not be efficient tools to assess the quality of

qualitative research. According to Flick (2009, p. 15) “Validity depends on the connection of findings with empirical material or the appropriate selection and application of the methods”. Yet he defines objectivity as “consistency of meaning when two or more independent researchers analyze the same data or material. Arriving at the same conclusions surmises they are objective and reliable” (Flick, 2009, p. 391). Patton (2002) argues that there are various sets of criteria to evaluate quality in qualitative research. Strauss and Corbin (1998) address the evaluation of the quality of qualitative research in terms of the data and theory itself. However, they especially focus on the adequacy of decisions during the research process and the quality of conclusions based on the empirical findings.

4.5. Trustworthiness of the Study

In qualitative research, trustworthiness of the research findings is evaluated under four criteria. These are credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). The definition of the evaluation criteria and their applications in this dissertation is illustrated in Table 9.

Table 9

Strategies Employed in this Dissertation to Ensure Trustworthiness

Evaluation criterion	Definition	How the criterion was applied in this study
Confirmability	Triangulation is one of the techniques to achieve internal validity of qualitative research (Merriam, 1998). Triangulation can be ensured by the consistency between findings and data collection methods, “consistency of data from different data sources with the same method”, by “using multiple analysts to review findings”, and by “using multiple perspectives to	Multiple sources of data were used to support participant interviews such as field notes and memos, website information, and media news about participants. This information was used before, during, and after the data interpretation. Moreover, an external researcher was used for data coding. After the external researcher’s coding, similarities

Table 9 continued

	interpret the data” (Patton, 2002, p. 556).	and discrepancies were discussed and the analysis was improved.
Credibility (Internal validity)	Thinking about alternative possibilities, explicating all assumptions and predispositions of the researcher can eliminate suspicion about the researcher’s credibility and increase the quality of the research (Patton, 2002, p. 553). Triangulation of the data via different methods, informants, and sites, iterative questioning in data collection, debriefing sessions between researchers and superiors are some of the strategies to ensure credibility of qualitative research (Lincoln & Guba 1985; Shenton, 2004). “A peer review or debriefing is the review of the data and research process by someone who is familiar with the research or the phenomenon being explored” (Creswell & Miller, 2000, p. 129).	I explicated my epistemological and ontological views in a separate section in this study (section 4.3). I illustrated my experience in qualitative data collection and information about my training (section 4.10). During the research process, I regularly met with my thesis advisor to discuss the findings and the next steps of the research.
Transferability (External validity)	Providing the background information for future researchers about the context of the study and “detailed description of phenomenon in question to allow for comparisons” (Shenton, 2004, p. 73).	I described the decision-making environment of entrepreneurs in video game industry by articulating the characteristics of the video game industry (such as competition dynamics and market opportunities in Chapter 3) and by describing participants’ daily lives in the context of METU Technopark in section 1.3.

Table 9 continued

Dependability (Reliability)	The main idea of this criterion is to ensure the repeatability of the study by giving “in-depth methodological descriptions” for future researchers when they employ “overlapping methods” (Shenton, 2004, p. 73).	I reported the research design, implementation, key decisions in the data collection, and interpretation process in detail.

4.6. Grounded Theory

Qualitative analysis refers to activities necessary to structure the meaning of unstructured data. According to Dey (1993, p. 31) qualitative analysis “...is a process of resolving data into its constituent components, to reveal its characteristic elements and structure”. The bridge between theory and method is achieved by an iterative process between the collected data and analysis (Van Maanen, Sorensen & Mitchell, 2007).

Grounded theory is one of the forms of qualitative methodology. The aim of grounded theory is to build theories based on the systematic analysis of empirical data. Introduced by Glaser and Strauss in 1967, grounded theory uses an iterative comparative analysis technique to achieve new theories by constant comparison of new and existing data. In this approach, theory is considered as an evolving process, “not as a perfected product” (Glaser & Strauss, 1967, p. 32). According to Goulding (2002), there are three steps of grounded theory development. The first is data collection and interpretation of the data in a way that shows how, why, and from where the concepts are derived. The second step is developing abstract concepts from the data and deriving theoretical meanings by showing how the theory can fit the existing literature. The final stage covers the presentation of theory to convey an explanatory meaning by showing the connections between categories and concepts (Goulding, 2002, p. 166). Conceptual categories and their properties, hypotheses, or generalized relations between categories and their properties are fundamental elements of grounded theory (Glaser & Strauss, 1967, p. 35). Holton and Walsh (2017, p. 10) claim that a grounded theory must explain what is happening in a social setting, rather than

only describing it. Therefore, the ability to draw concepts about the empirical data become crucial. Aims of grounded theory research are provided in Table 10.

Table 10

Aims of Grounded Theory

Authors	Aims of grounded theory
Thornberg and Charmaz (2013)	“To explore the individual and collective actions, social and psychological processes such as everyday life in a particular social setting.” “To understand what people, do and the meanings they make of their actions and on the situations in which they are involved.”
Patton (2002, p. 489)	“To generate explanatory propositions to real world-phenomena.”
Holton and Walsh (2017)	“To make conceptual abstractions about the social setting which is subjected to inquiry.”

Glaser and Strauss (1967) argue that grounded theory must at least meet four requirements. First, the theory must closely “*fit*” the actual domain in which it will be used. Second, the theory must be “*understandable* “to the people in that domain (not only understandable by the experts or researchers) so that the theory can be ready to use and contribute to the awareness of the problems of people in the related domain. Third, the theory must be “*sufficiently general*” so that it can be applied in various daily situations within the related domain. The theory must not only be able to explain a particular type of situation. Fourth, the theory must allow its users, at least partially, to have “*control over*” the daily realities as they change by providing controllable variables which users can access through their means (Glaser & Strauss ,1967, pp. 237-250).

Grounded theory has been used in management research since the 1970s (Locke, 2001, p. 93) and is deemed to be a suitable method to study managerial and organizational research since it is essentially concerned with social processes, individual, and group

behavior (Locke, 2001, p. 94). This suitability stems from the grounded theory's ability to capture complexities of the context, its usefulness in bridging theory and practice, its potential to discover new theories and/or strengthening existing theories by providing additional perspectives (Locke, 2001, p. 94-98). However, Locke (2001) argues that access to data, the sustainability of the access, the overlapping nature of data collection and data analysis, ethical concerns which may arise when obtaining data from organizations and/or from the members of organizations could be considered as the limitations of grounded theory.

4.7. Sampling

This dissertation utilizes the purposeful sampling method. Purposeful sampling allows for in-depth understanding by focusing on the information and insight-rich cases which are relevant to the purpose of study (Patton, 2002). The population of this dissertation is geographically and sectorally bounded. The sectoral boundary is the video game industry and businesses related to video games, while the geographical boundary is METU Technopark. METU Technopark provides an appropriate context for research on the video game industry because it is the first and oldest technopark of Turkey. METU Technopark contains software companies and it incorporates a pre-incubation center specifically built for animation technologies and game development.

The population, therefore, includes game developers, entrepreneurs, and people who work for video game companies. Actors other than entrepreneurs in the population are not included in the study. Since the focus of this dissertation is on the decisions of entrepreneurs during their entrepreneurial journeys, this study considers the founders of companies as main correspondents since the founders are the primary decision-makers in start-ups and only they can narrate the complete story of the company. With the same logic, regarding the cases of video game development teams which have not yet established their company, the leader of the team is considered as the viable correspondent. Regarding the companies with more than one founder, the participation of at least one of the co-founders is considered to be sufficient to obtain the necessary information.

Although there is an established ecosystem in METU Technopark, the population for video game companies contains around 30 companies. I considered this fact as an advantage rather than a deficiency. At first, I intended to cover the whole population. However, as the interview process progressed, I noticed that some teams/groups within the METU Technopark were new attendees or there were portfolio entrepreneurs who had just taken over a video game company. I realized that their time in the industry will not allow me to grasp their company histories with critical decisions and certain milestones. After this realization, an experience criterion was developed for the operationalization of the research. The final sample of this dissertation is composed of 22 entrepreneurs with at least one year of experience in the game development business, who reside in METU Technopark.

Most of the companies in the scope of this dissertation's sample are considered as start-up companies. However, it also covers experienced companies. Start-up is defined as "the act or an instance of setting in operation or motion, a fledgling business enterprise"¹⁷, "a small business that has just been started"¹⁸, or "a newly established business"¹⁹. All of these definitions evoke a beginner activity. Still it is necessary to state that the start-up process does not end once the entrepreneur establishes his/her company. The definition covers the follows the periods of actual establishment of the company. Based on this clarification, this study does not solely focus on the process between idea generation and the actual establishment of the company. Rather it covers the period between idea generation and the ventures' current state of development.

¹⁷ <https://www.merriam-webster.com/dictionary/start-up>

¹⁸ <http://dictionary.cambridge.org/dictionary/english/start-up>

¹⁹ <https://en.oxforddictionaries.com/definition/start-up>

4.8. Data Access

I referred to the METU Technopark website as a first step to obtain the e-mail addresses of possible interviewees. Next I contacted Elif Buğdaycıoğlu and Emek Kepenek, the coordinators of the ATOM pre-incubation center, to make sure that I obtained the updated list of the companies' contact information. As a result of the conversations between me and the coordinators of ATOM, the contact list was refined by omitting the companies which were closed, relocated, and those which no longer operated in the video game industry. The final list is composed of 22 companies/teams in the METU Technopark area; ten of them located in ATOM, the rest located in various buildings within the METU Technopark premises.

A standardized invitation e-mail was sent to participants by giving information about my doctoral dissertation study. In this text I introduced myself, explained my reason for reaching them, from where I obtained their contact information, the aim of my study, and the content of the interview questions, and asked for their permission for voice recording of interviews. The official e-mail invitation used in this dissertation can be found in Appendix D.

4.9. Ethical Approval

The ethical permission of this research is obtained from the METU Human Research Ethics Committee with the protocol number 2016-SOS-179. Besides, METU Technopark management's permission was granted for the researcher to realize face to face interviews at the ATOM incubation center and METU Technopark for the period between 5th January 2017 to 30th November 2017. A few of the participants could not be reached between these days due to the participants' schedule. In such cases, I had the chance to reach alternative representatives from the company. However, some interview questions remained unanswered since the questions required the knowledge of the founder. Therefore, the ethics approval was extended until 30th June 2018 with the protocol number 2017-EGT-189. The approval from METU Ethics

Committee, the extension of ethical approval, and the permission from METU Technopark are provided respectively in Appendices A, B, and C of this dissertation.

Informed consent of the participants about the nature and consequences of the research, no participant deception in the research design, protection of the privacy and confidentiality of the personal data of the participants, and accuracy of the data are the foundations of ethical code in social sciences (Christians, 2005, p. 144-145). All of the participants in this study were informed about the goals of this study before their participation to this study via a standardized invitation e-mail. Besides, each participant signed a consent form regarding the use of their data for the current study and for future research. I handed out a post-research information form in which I thanked the participants for participating in the study, and provided the rationale of the interview questions by explaining the main theoretical framework utilized in the research. Besides, the interviewee was ensured about the confidentiality and anonymity of their answers, and the interviewee was informed that their answers would be analyzed with other interviews as a whole. Finally, I also requested the participants not to share information about the content of the interviews with people who could potentially participate in this study.

4.10. Data Collection

Smith (2001) argues that stories about why things happened and how information could be applied can reveal the tacit knowledge in the organization. To uncover these stories, this dissertation utilized face-to-face semi-structured interviews as the main data collection method. During the interviews, an interview guideline was used to ensure that all interviewees were inquired about the central questions related to this research. Using an interview guideline provides the efficient use of time and keeps the interviewee focused, but also allows the interviewer to probe on issues that the interviewer thought useful (Patton, 2002 p. 343). The detailed version of the interview guideline utilized in this dissertation is provided in Appendix E.

Before starting the interview, I explained that this study was conducted for my Ph.D. dissertation in the Science and Technology Policy Studies Department in Middle East Technical University. After this introduction, participants signed the consent form and their consent regarding the audio-recording of the interview was asked again. The interview started after having the written and verbal consent of the participants. Except for the pilot study, the interview language was Turkish. All interviewees were native speakers. The interviews were held between 05.01.2017-05.04.2018. During four of the interviews, the business partners of the participants were also present. In the cases of Participants 2 and 4, the main respondent was the entrepreneur and the other partner's contribution was limited. The participants mainly referred to their partners' help for recalling certain events and confirmation of particular dates. The partners seldom expressed their opinions. In the cases of participants 6 and 12, the contribution of the other partner was more. In these cases, the participants narrated the story together and, in some cases, completed each other's sentences.

Before the pilot study, the researcher reviewed the interview questions with a Ph.D. candidate in the Computer Education and Instructional Technology department of METU, who himself has developed several video games for mobile platforms. A meeting was organized on June 23rd, 2016, with the aim of checking the comprehensibility of the questions and to have insights from him about the entrepreneurs' willingness to respond to the interview questions. In this brainstorming meeting, some insights were also derived about the developer profile in ATOM and their approach to business risks.

As a pilot study, I conducted an interview with the founder of an Istanbul-based video-game company. As a result of the pilot interview, the title of the interview questions was changed since I realized that the interviewee could not comprehend the focus of the interview in the first place. The previous title was "Evolution of Networking Logics of Entrepreneurs in the Video Game Industry", which was modified as "The Role of Inter-Firm Relationships in Video Game Companies". On the other hand, questions about disappointing relationships were added in order to probe for the close relationships of the interviewee. The added question was "If you had the opportunity

to find another partner (mentor/investor/coworker and so on) without any costs (in terms of time/money) is there anyone you would like to replace? Can you tell me why?”

During the face to face interviews, I brought three different colored cardboards for each part of the interview questions. First cardboard was used to sketch the timeline of the company based on the most important events and decisions made at that stage. I planned to extend the board for interviewees to draw a timeline by themselves; however, most of the interviewees preferred me to write important events. During the interview, I asked the participants to check the sequence of events, details, and dates. During this activity, the participants and I worked on the same desk in order for us to follow the timeline board simultaneously.

All of the interviews were audio-recorded based on the consent of the respondent. The average duration of interviews was 86 minutes. In qualitative research, direct quotations from the respondents are considered as the basic raw data (Patton, 2002, p. 20), therefore I transferred all the electronic audio recording files from audio-recorder memory to a cloud storage system. The audio recordings will be destroyed after the end of the study. The paper-based interview notes and the colored cardboards are stored in a locked filing cabinet in my office.

Interview transcripts and colored cardboards are the main data sources. Before the interview date, I made desktop research about the entrepreneur and the company. In this way, I wanted to save time, familiarize myself with the company and their products, and create a list of probing questions for the interviews. Webpages and news on the media constituted the secondary source of data. Table 11 shows the data sources used in this study and Table 12 illustrates the demographic information of participants.

Table 11

Data Sources

Interview transcripts of participants	641 pages (1091 minutes in total)
Colored cardboards	66
Secondary data sources: webpage and news	65 different sources
Memos	34 pages

Table 12
Participant Demographics

ID	Business Type	Age of the firm as year	Age of respondent	Gender of respondent	Education Background			
					Undergraduate Degree		Master's Degree	
					University	Department	University	Department
							University	Department
1	Game development software	3	30	M	METU	Computer Engineering	METU	Information Systems
2	Animation content for games	2	30	M	METU	Industrial Design	Anadolu University	Animation
3	Mobile casual games	1	31	M	METU	Computer Education and Instructional Technology		
4	Mobile casual games	2	28	M	Başkent University	Computer Engineering	METU	Game Technologies
5	Mobile and PC games	3	29	M	Başkent University	Computer Engineering		Computer Engineering
6	Mobile and PC games	na	25	M	Istanbul University	Computer Engineering	METU	Game Technologies
7	Mobile casual game	na	20	M	Başkent University	Electric Electronics Engineering		

Table 12 continued

8	e-learning, mobile games, Playstation port services	7	34	M	Gazi University	Cinema and Television	Ufuk University	Business Administration
9	PC games, gamification services	1,5	32	M	Bilkent University	Computer Technology Information Systems	Bilkent University	Graphics and Communication Design
10	Mobile casual games, social media games	5	29	M	Bilkent University	Mathematics		
11	Mobile casual games	2	36	M	Ankara University	Chemical Engineering		
12	Mobile casual game	na	23	M	Gazi University	Computer Engineering		
13	Mobile and tablet games for children	1	23	M	METU	Computer Engineering		
14	Online PC games	na	20	M	Başkent University	Electrical and Electronics Engineering		
15	Mobile casual games	4	37	M	Anadolu University	Business Management	Hawaii Pacific University	MBA
16	Mobile casual games	na	24	M	Atılım University	Software Engineering		

Table 12 continued

17	Mobile games for children	4	27	M	Gazi University	Computer Engineering	METU	Game Technologies
18	Education games; mobile casual games	4	31	M	METU	Computer Education and Instructional Technology	METU	Game Technologies
19	Mobile casual games	4	28	M	METU	Physics	METU	Science and Technology Policy Studies
20	Mobile casual games		na	30	M	Cukurova University	Mechanical Engineering	Computer Animations and Game Technologies
21	Mobile and social media games, Serious games and simulations		12	42	F	Hacettepe University	Electric Electronics Engineering	Electric Electronics Engineering
22	PC and console games		13	46	M	Bilkent University	Computer Engineering	Computer Engineering

4.11. Coding Framework

Coding is the intermediate stage between data collection and data analysis in qualitative research (Saldana, 2015). Using the grounded theory method in studies generates several challenges and dangers in addition to its tedious and time-consuming nature. The first danger is micro coding that might stem from line by line coding. Micro coding refers to creating an immense amount of codes from data, which in turn results in “over-conceptualization” and/or makes conceptualization even harder (Glaser, 1992, p. 40). Glaser (1992) advises to overcome this problem by key point coding; i.e., coding only the important points in the data. However, researchers can still experience hard times. The decision about when to stop coding, the absence of criteria regarding the exclusion/inclusion of a statement into the code to guide the researcher, and doubts about how many concepts would suffice to build a category constitutes some of the factors that makes data coding difficult (Allan, 2003).

Similar problems were experienced by me as well. I started coding manually; however, this created a tracking problem of codes and resulted in creating the same code multiple times or codes with similar names. After this experience, I decided to receive training on a computer-assisted qualitative data analysis software. I used MaxQda 2018 with the hope of overcoming the organization and management of codes. The software provided many benefits in these terms. This effort in coding further familiarized me with the data. Still I also experienced the micro coding problem as the initial coding with MaxQda resulted in 2316 codes. Therefore, I decided to code the key processes instead. On the other hand, I realized that studies on the theoretical framework used in this study provided the necessary coding scheme to identify the decision-making approaches. Therefore, I used codes derived from the MaxQda as a secondary resource but benefitted from them when I needed to give an alternative example, highlight a certain challenge, or to give details of a particular adversity faced by the companies.

An interview guideline designed for a semi-structured interview is necessary for data collection. Inevitably, the existence of an interview guideline also represents a pre-determined research agenda. Similarly, the interview guideline used in this dissertation

is partly influenced by the existing literature on entrepreneurial decision-making. In Gehman et al. (2018, p. 14), Langley proposes that abduction, rather than induction or deduction, can be the appropriate term which links empirical observations in the field and theories for researchers to extend the theory. Langley states that “Quite often my studies have a section called theoretical framework where I say: “Well, this is what the theory says but this is what we don’t know. That gives me enough to move forward””. I adopted a similar view regarding the theory-method fit in grounded theory research. Considering the goals of this dissertation, I decided to use the theoretical constructs of effectuation theory presented in the literature review chapter as the main principles. The interview guideline helped me to grasp such concepts but provided room for other explanations as well.

The data is analyzed based on a comparison of effectuation and causation decision-making approaches. Such a comparative technique was initiated by the originator of the theory and integrated within the following empirical studies on effectuation as well. The coding framework provided in Table 23 was built on the work of Sarasvathy (2001), Dew et al. (2009), and Reymen et al. (2015). Yet I used all of the five principles when differentiating between effectuation and causation, as in Read et al. (2009). In addition to the theoretically classified codes presented in Table 13, I also integrated codes emerging from the data. First of all, I classified participants in terms of their intentions and surrounding conditions when they first started to be involved in the video game industry. Secondly, I developed a sequenced approach to frame the entrepreneurs’ journey. Thirdly, I analyzed the external factors which had an impact on the participants’ decision-making approach. I coded these factors as triggering factors and presented their role in each phase of the entrepreneurial journey. I let the data speak while coding the triggering factors.

Table 13

Coding Framework to Differentiate Between Causation and Effectuation.

Causation			Effectuation
DM Dimensions	Code Name	Code Definition	Code Name Code Definition
The basis for taking action	Goal-driven	Actions are guided by a pre-defined goal.	Means-driven The non-existence of goals or poorly identified goals. Actions based on available resources in the local environment.
		Indication of efforts to obtain resources that entrepreneurs deemed necessary to achieve their goals. Preparation of business plans, feasibility reports, documenting milestones, detailed vision or goals, strategic documents prepared for how they anticipate to earn money, sustain their businesses, and so on. Awareness of the necessities to achieve the identified goal, working towards finding the missing resources. Any type of evaluation to check whether the company is heading towards the anticipated route.	
View on risks and resources	Expected returns	Underlying logic of decisions based on gains that entrepreneurs could obtain as a result of their operations.	Affordable Loss The non-existence of efforts or non-elaborative efforts to identify risks.
		Calculation of expected returns. Preparing strategies to reach or maximize returns. Construction of goals based on returns they may bring in the future. With the goal to maximize future returns,	
			Tendency to make small investments (time, money, effort, motivation, emotional attachment). Tendency to focus on losses (rather than returns) based on the calculation of

Table 13 continued

	entrepreneur invests in the business model with more promising gains.		worst-case scenarios. Taking decisions in circumstances "safe to fail".
View on contingencies	Avoiding	Calculation of risks of possible scenarios. Developing back-up plans for unexpected circumstances. Avoiding unexpected circumstances as much as possible. Cancellation of plans/strategies when confronted with uncertainties or unforeseen situations.	Leveraging An adaptive feedback-seeking and feedback-incorporating process. Uncertainty not considered as a detrimental factor for taking action. Using uncertainty as an advantage for actions and decisions. Attitudes indicating being at peace with uncertainty and unforeseen events. Adapting to unforeseen developments, changing plans according to feedback.
View on outsiders	Competitive selection of partnerships	Search and selection of potential stakeholders guided by functionality of people for projected business goals. Searching for people with suitable knowledge and skills who can best fit the task for the anticipated goals. Making competitive evaluations between possible stakeholders and selecting one or a few of them and make others redundant. Existence of distribution of roles for certain critical decisions. Contract-based partnerships. Protecting or withholding information from outsiders. Using IPR protection. Not showing the unfinished product to potential stakeholders or customers.	Building partnerships Formation of partnerships without using a competitive, contest-like process among possible stakeholders. Selecting partners from among people they trust; whether or not they have a business relationship in the past. Entrepreneur welcomes the ideas of the partners and allows their ideas shape the venture. Using existing trust-based relationships or forming stakeholder relationships based on trust. Lack of or poor negotiation of the partnership's conditions. Collective decision-making indicating the co-creation of the venture. Openly sharing information with potential partners about products/strategies/resources/opportunities.

Table 13 continued

Sense of solidarity between partners. Trust-based agreements.		
View on future	Predictive	Non-predictive control
	The entrepreneur bases his/her strategy on market predictions. Evaluation and tracking of external data such as market trends and forecasts and behaving according to them. Following competitors' strategies. Carrying out systematic market research activities, modifying strategies to converge with the technology/market trends and expectations. Change of action based on market's direction or competitors' strategies.	Entrepreneur does not predict the future, rather he/she takes action for the future to obtain ends he/she wished to achieve. Such behaviors meant to control the future. Real interaction with the world. Entrepreneur acts based on his/her vision when making decisions at critical points. Entrepreneur takes control of his/her venture knowing that he/she is the major responsible agent. Taking action counter to the market trends, expectations, and any form of outside insight about the market. Pursuing personal ambitions, ideals, or visions.

The reliability of this study is enhanced by working with a second-coder in terms of coding the decision-making approaches of entrepreneurs as effectuation and causation. I prepared a coding manual for the external coder in order for her to differentiate decisions between effectuation and causation. Besides, I provided the relevant parts and excerpts of the interview. Overall, the agreement between me and the external coder is estimated as 73%. The manual for external coder can be found in Appendix G.



CHAPTER 5

FINDINGS

In this chapter, the findings are handled in nine sections. The first eight sections discuss a particular phase of entrepreneurial journey, participants key decisions, analysis of key decisions with respect to effectuation and/or causation, and an examination of triggering factors at work. Finally, Section 5.9 summarizes the chapter.

The first step of the analysis was to group the interviewees according to their motivations for entering into the industry. Many readings of the interview transcriptions revealed four profiles of entrepreneurs. The first group is named as professional idealists (PI) and contained participants who explicitly stated that their aim was to establish their own business in the video game industry. The second group was named as student entrepreneurs (STE) and included those who were still students in an undergraduate university program when they joined ATOM or METU Technopark. This group also included those who joined the industry to improve their game development skills and wanted to experiment with the game projects they had. The third group was called job quitters (JQ) and as the name indicates, included people who had quit their salaried jobs to make a transition to entrepreneurship. The fourth group was named as experienced entrepreneurs (EE) and included those who had prior entrepreneurship experience in the video game industry or in other business fields before the current one²⁰. The abbreviations of the participants' profiles, participant

²⁰ It must be noted that the “experienced entrepreneur” profile here did not presume any year-based experience level and does not have any kind of reference to Sarasvathy’s expert entrepreneur. This profile means that those in this group had started a business before they started the current one.

numbers, and the distribution of each profile in the final sample is provided in Table 14.

Table 14

Categorization of Participants Based on their Motivations to Join the Industry

Profiles	Explanations	Participants	Number
Professional idealists (PI)	People who aimed to establish their own business in the video game sector.	2, 5, 6, 17, 18	5
Student entrepreneurs (STE)	People who were students and entrepreneurs at the same time; people who wanted to increase and/or test their game development skills.	4, 7, 8, 12, 13, 14, 16, 19	8
Job quitters (JQ)	People who have quit their salaried jobs and wanted to be an entrepreneur in the game industry	1, 3, 9, 11, 15, 20, 21	7
Experienced entrepreneurs (EE)	People who have prior entrepreneurial experience	10, 22	2

The categorization of entrepreneurs was made to understand the interviewees' expectancies about their ventures. I also reasoned that, entrepreneurs' initial expectancies about their ventures may reflect themselves in the entrepreneurs' perception of failure, risk-taking behavior, crisis management methods, and various critical decisions during the life span of their business. Another reason for creating categories is influenced by the main framework of this dissertation; i.e. effectuation. Since the existing empirical and theoretical studies indicate that effectuation is utilized

mostly by expert entrepreneurs (Sarasvathy, 2001; Wiltbank et al., 2006), I wanted to examine whether or not this is the case. With this categorization, it was also aimed to understand the level of risk attached to participants' decision to become an entrepreneur. These categorizations are based on the declarations of the interviewees about their initial entry mind-sets. Motivations of entrepreneurs and risks attached to their decisions can evolve over time. Nonetheless, I reasoned that such categorization may provide a good start to understand the antecedents of the entrepreneurs' plunge decisions and onwards.

At the time of the interviews, 16 out of 22 interviewees had registered companies. The remainder of participants were representatives of game development teams, including one individual developer. It can be seen from Table 15 that those who had not yet established companies are concentrated in the STE group.

Table 15

Distribution of Participants' Company Registrations in Terms of Profiles

	STE	JQ	PI	EE
Number of those who established a company	4	6	4	2
Number of those who had not established a company	4	1	1	0
Total	8	7	5	2

After grouping the entrepreneurs who participated this study, I focused on revealing the main processes of their entrepreneurial journeys. Paying attention to the underlying processes in interviews is also advised by the grounded theory method (Bryant & Charmaz, 2007). During the interviews and coding with MaxQda 2018, I observed that interviewees mentioned similar processes when they were asked to tell their story about how they decided to join the industry and which milestones they experienced

until the date of the interview. The analysis revealed that participants had been through eight major phases which are presented below in Table 16.

Table 16

Main Phases of Entrepreneurial Journey of Participants

1.	Initial Decision-Making Phase
2.	Team Formation Phase
3.	Game Development Phase
4.	Marketing Phase
5.	Establishing, Expanding and Narrowing the Network
6.	Survival Phase
7.	(Re)configuration of Organizational Structure Phase
8.	Team Reconfiguration Phase

Recognizing these phases had two main consequences. First, I revised the sample by going through interview transcriptions, memos, and secondary data in order to convey a more comprehensive analysis of the decision-making approaches of entrepreneurs. Secondly, the phases of the entrepreneurial journey provided an overall framework for the interpretation of the data. In addition to its practical benefits of grouping the whole process and unbundling an overwhelming amount of data, it also provided the opportunity to link the tasks that entrepreneurs tackled with the decision-making approaches they employed. The latter benefit also enabled me to understand the environmental factors that led the participants into a particular decision-making approach.

The next sections of this chapter elaborate on the participants' decision-making approaches in each phase. Participants' decisions were categorized in terms of effectuation or causation and the underlying decision-making principles. The criteria for the differentiation are provided in Section 4.11.

5.1. Phase 1: Initial Decision

Effectuation is often used by entrepreneurs at the pre-establishment stages of their firms (Dew et al., 2008). Therefore, I wanted to examine the thoughts, goals, options, and perceptions of entrepreneurs' that played a role in the plunge decision.

Firstly, the analysis of the decision-making processes of entrepreneurs showed that in addition to their passion for games, participants' decisions were facilitated by several factors; such as having success with game development skills and/or business model, coincidences, the existence of grants. Besides, negative triggers such as job dissatisfaction and infrastructural needs (such as the lack of an office) played a role in the participants' entrance into the METU Technopark ecosystem and taking their business more seriously. video game industry. These positive and negative triggering events constituted the antecedents of effectual and causal decisions at the initial phase.

Effectuation theory speculates that entrepreneurs start their ventures by asking the *Who I am* (including "tastes, traits, and abilities") *What I know* ("education, experience-based or other types of prior knowledge"), *Whom I know* ("social and professional networks") questions to themselves (Sarasvathy, 2001; Sarasvathy & Dew, 2008). While participants conveyed the background of their decisions to take part in the video game industry, they mentioned several events and situations which were facilitated their decisions. In this dissertation, such events and conditions are conceptualized as triggering factors, and I argue that triggering factors impact the decisions taken at each phase of the entrepreneurial journey. From the view of effectuation theory, it can be argued that triggering factors created a change in the participants' identity, knowledge, and networks. Although some participants stated that they started their ventures with limited resources such as lack of knowledge about entrepreneurship or business

mindset, it can be said that such triggering factors created a change in the means of entrepreneurs in a way that entrepreneurs considered themselves enriched in terms of resources they have. Participant 1 gave details behind the plunge decision. He stated that *“A friend of mine who I’ve worked with in my previous company applied for this grant and established his company. We saw him...He set as an example to us”*. He emphasized that government grants had facilitated his decision to start his company.

In this phase the dominant decision-making approach was effectuation. It was used by 16 of the 22 of the participants. Six participants used causation type of decision-making. Participants’ statements and the identification of their decision as causation or effectuation can be seen in Table 17.

In terms of decision-making principles, means-driven decisions remained at the forefront in Phase 1. This finding shows that the decision to enter the industry is driven by the means available to participants rather than goals that participants had. Besides, the participants’ view on outsiders and contingencies also supported effectual decisions. The decision to enter the pre-incubation center was sometimes taken with the influence of relationships with or guidance of the technopark administration for successful teams in the entrepreneurship contest Yeni Fikirler Yeni İşler (New Ideas and Businesses)²¹ in METU. Participant 19 who started as a student entrepreneur and now owns a four-year-old game company shared the details of the process behind his initial decision as follows:

Near the end of my third year in the university, in the summer of 2011 we established our team...It started with METU Technopark’s YFYI contest. There, we were chosen from among ten teams; it’s called the semifinals. In the semifinals, they told us that “Your business idea is related with games, and we have a pre-incubation center called ATOM in METU Technopark, we would like to invite you there. You can go and start working there as if you were selected into ATOM”. Then, we were in the ATOM process for 1.5 years. In the meantime, school and entrepreneurship went together. Actually, we had no plan of being entrepreneurs. It was an abstract concept for us. We

²¹ <http://www.yfyi.com/application/about/>

only had an idea we wanted to implement. During this time, the idea to establish a company, turning this into a commercial activity started, during the ATOM process.

At the initial phase, although less frequently, the participants' decisions indicated a goal-driven approach. In the initial phase, some entrepreneurs wanted to create a more disciplined work environment and wanted to meet infrastructural needs of theirs such as an office and a permanent address; as in the case of Participants 9, 10, 13, 17, 20 and 21. In the case of Participant 20, the participant had a projected progression path for himself, he was aware of what he needed, and he took his decision in a goal-driven way. Alternatively, the case of Participant 9 showed that his goal-driven decision was compelled by environmental conditions toward a search process for transferring the game development business elsewhere.

Table 17

The Use of Effectuation and Causation Approaches in the Initial Decision Phase (Phase 1)

ID	Profile	Excerpts	Decision-Making Type	Decision-Making Principle
1	JQ	“Now let me tell you this. If there was no R&D support, I wouldn’t go into this business. Because of the Techno-Initiative Capital Support²², I quit my paid job and got into this business”. “I started this business without any knowledge about the start-up world. I had no idea! No idea about anything! The whole thing started with what do I want? Instead of working at my current company, I want to do my own project and I want to publish it somehow.”	Effectuation	Means-driven
2	PI	“We heard about ATOM from someone in KOSGEB’s training. He mentioned a place in which animators and game developers were located together. Then, we’ve just come here without thinking about the rest of it!”	Effectuation	Leveraging contingencies
3	JQ	“Our game was chosen as second in Global Game Jam. Then the idea came to me. I said I need to go to ATOM, I should apply for it, I should produce games and make money.”	Effectuation	Means-driven
4	STE	“Actually, it was not a very conscious decision... We had no idea whatsoever about starting a company. We just wanted to produce games.”	Effectuation	Means-driven

²² This is the English name for the “Teknogirişim Sermayesi Desteği” offered by the Ministry of Science, Industry and Technology between 2009-2015. This support program was discontinued in 2016. <http://teknogirişim.sanayi.gov.tr/Subpart/PartDetail?p=1#>

5	PI	“I had done the programming of one of the games produced in ATOM. One of the developer friends in ATOM said that he needed a developer, told me about the project and so on. So, I came and became a partner.” “Then our paths split, I established my company.”	Effectuation	Building partnerships
6	PI	“My graduation project was a game.” “I knew that most of the game companies were from Ankara but I hadn’t heard about ATOM. In my first year in Ankara, I researched companies a little bit and found out that they were mostly from ATOM. That’s part of the reason I applied.” “I came here based on my interest. But the idea to set up a company appeared afterward.”	Effectuation	Means-driven
7	STE	“It was a last-minute application. It was the last day of applications; we had an hour or so. I applied while thinking that they are never going to accept us! Because I thought this place was for professionals. But it was not. There are lots of people like us here.”	Effectuation	Affordable loss Leveraging contingencies
8	STE	“She said “Why don’t you apply here? You can be an entrepreneur.” I said Ok...I have always wanted to be an entrepreneur but it might be in a different domain if I was not in ATOM.” “It can be a strategic decision for people who come here today. Because the system is established now! There was not something that could ease your step in”.	Effectuation	Means-driven
9	JQ	“For a long time, we were counting the days to leave. At least for the last one and a half years at the previous company, there was an unstable atmosphere. On a regular basis, we were reminded that this department might be closed!” “I knew and had heard about ATOM from the media. One day my co-partner offered to apply. I said ok without any hesitation.”	Causation	Goal-driven
10	EE	“We wanted to have a permanent place. We saw that ATOM was providing such facilities, so we moved there”.	Causation	Goal-driven
11	JQ	“Suddenly, I decided that I can do something for myself too. Therefore, I resigned... Doing something related to games was in my mind but it was not	Effectuation	Leveraging contingencies

Table 17 continued

	clear... In those days I stumbled upon my old colleague...He talked about several jobs... We started to work together but not in a formal way...He is my current partner now."	Building partnerships
12 STE	"There was a game jam organized by Technopark and the Chamber of Commerce in 2016, in which ATOM's ecosystem had participated... We integrated the game jam theme with our game idea and it was very much liked; they wanted us to continue with this".	Means-driven Building partnerships
13 STE	"We wanted to be in ATOM due to its infrastructure... We were very new and we wanted to be attached to some place. We wanted people to be able to find us somewhere."	Goal-driven Causation
14 STE	"We had a project we had been working on by ourselves in university. One of my...professors referred us to the current director of ATOM... With his encouragement, we applied here. The other option was that we wanted to build a student community or apply to our university's pre-incubation center."	Building partnerships Effectuation
15 JQ	"The main founders are childhood friends...Based on their interest in games they (we) ²³ entered this sector. After long trials and different games, as they (we) were informed about ATOM, they (we) started to work in ATOM...to learn to design good games, produce good games, to learn the game production processes."	Means-driven Effectuation
16 STE	"The former director of ATOM had come to our university for a seminar. She told us about the Turkish game industry and game development processes...I was interested. I applied for an internship at ATOM...One year later, I applied to ATOM".	Leveraging contingencies Effectuation
17 PI	"We understood that we can achieve things as a team...Then we started to search for a more serious working space. At that point one of our friends mentioned	Goal-driven Causation

²³ ID 19 joined the company later than the first founders. Here participant 19 refers to the company when he says "they". Therefore, the author felt the necessity to insert "we" in brackets.

Table 17 continued

ATOM. A pre-incubation center appeared as a good place to start. That's why we applied to ATOM."				
18	PI	"There was a gap between where the company was heading and the directions we had aspired for. I didn't see myself at those places when I listened to my inner voice". "There was a hackathon... We were ranked first in that event...Also we started to know ATOM. With that project we got a reference letter and applied for TUBITAK support... We joined ATOM one week before we established the company. There were similar processes and evaluations."	Effectuation	Leveraging contingencies Building partnerships
19	STE	"Actually, we had no plan of being entrepreneurs. It was an abstract concept for us. Only, we had an idea we wanted to implement... Turning this into a commercial activity started during ATOM process."	Effectuation	Building partnerships Means-driven
20	JQ	"When I was there (referring to the company he worked previously), I wanted to be somewhere else." "The reason why we came to ATOM was to be in the ecosystem, to become connected to people here somehow, to benefit from the experiences there, be more serious with our job." "We wanted to gather everybody in the same place instead of being dispersed, to work regularly and more seriously, to release games. And if things go well, we will establish a company. That was the mindset we had."	Causation	Goal-driven
21	JQ	"Actually, we were doing alright, we were comfy ...I had become a senior engineer. But we took this decision because we only wanted to make games."	Causation	Goal-driven
22	EE	"It started as an amateur project with my wife...When we saw that our demo was successful, our self-confidence came and we decided to establish our company."	Effectuation	Means-driven

5.2. Phase 2: Team formation

Partnerships as a mechanism for increasing resources have a central role in the effectuation framework (Sarasvathy et al., 2014). Sarasvathy et al. (2014, p. 74) state that “*an effectual approach calls for entrepreneurs to rapidly engage in conversations with a variety of people they already know or come into contact with, some of whom end up making actual commitments to the new venture*”. The team formation phase consists of the founders’ choice about who to work with when they decided to enter this industry. Video game production is an interdisciplinary work and necessitates people from numerous professions and perspectives to deliver successful games to the market. Having a good team was considered very important for the growth and sustainability of businesses by participants of this study. It must be noted that team formation is a one-time decision and a shorter process of decision-making. I observed that team members can change, and the team size can expand and decline in time. Such changes in the structure of the team will be covered in the team configuration phase, in Section 5.7. of this dissertation.

In this study’s sample, three forms of team development were observed. First, those who entered this industry with an existing team. Second, those who transformed their long-term, trust-based relationships (such as schoolmates, roommates, former colleagues, childhood friends, spouses) into business partnerships. Thirdly, those who used training events of the pre-incubation center and industry events such as global game jam as a means to find partners or team members. It was observed that people can team up with others whom they did not know well, yet decided to collaborate due to the necessities of the business or based on having the cognitive proximity and similar tastes in games. This kind of team formation was also seen in those who met by coincidence, as much as relationships based on overlapping needs. Table 18 provides the background of the participants’ decision when they formed their teams.

It was observed that the participants described their team formation decision as a rapid decision made in a casual sense. However, it was also observed that team members sometimes left, as in the cases of Participants 3, 5, 8, and 10.

In this phase, 20 of 22 participants relied on the effectuation approach when they selected their team members at the beginning of their ventures. In Phase 2, the most employed decision-making principle was means-driven. 13 of the 20 participants who took effectual decisions used only the means-driven action principle of the effectuation approach. Here, the available means were the people the participants knew from the past or people they had a close relationship with. Five of the 20 participants who took decisions in line with the effectuation approach used multiple decision-making principles. Means-driven decisions were accompanied by the “building partnerships” and “leveraging the contingencies” principles. In cases where participants formed partnerships with people, they knew very little about or did not know them professionally. I interpreted these types of decisions, as decisions taken in effectuation approach by using “building partnerships” principle because the participants incorporated the outsiders into the creative development process of their games and ventures without setting specific boundaries. Leveraging the contingencies referred to circumstances where entrepreneurs adapted to the uncertainties and unexpected events in order to realize their ideas. Similarly, participants used surprises and unplanned or unexpected events to build partnerships with people they already knew or had newly met.

Causation was used by two of the participants in Phase 2. In the case of Participant 8, it was underlined that the basis of the partnership was mutual needs, rather than trust or a shared vision. This mode of team formation indicated that the functionality of each member was at the forefront of partnership relations. Interestingly, the case of Participant 16 showed that the desire to have success one’s own may drive people to work alone.

In the Team Formation Phase the main triggering factors for effectuation type of decision-making were former acquaintances, including childhood friends, colleagues, classmates, and spouses. Besides, a similar passion for games and team members’ former game development experiences facilitated partnership decisions.

Table 18

The Use of Effectuation and Causation Approaches in the Team Formation Phase (Phase 2)

ID	Profile	Excerpts	Decision-making type	Decision-making principle
1	JQ	“At the start, if I need to go back, I talked with the people around me. I said “Let’s do this together, let’s be partners.” But they wouldn’t dare ... That’s why, I, was forced to start on my own. It was not something I’d have preferred.”	Effectuation	Means-driven
2	PI	“We decided to establish a company, without knowing much about how! With my wife, who was my girlfriend back then, and with my childhood friend”.	Effectuation	Means-driven
3	JQ	“We formed a team there (at Global Game Jam). Three people from the Computer Instruction Department, and one person sitting near us. We formed a small team of four.” “We came to ATOM as four people, then the team dissolved”.	Effectuation	Building partnerships
4	STE	“We are friends from university.” “I can’t say I do this or that on my own. Generally, we do everything together by mutual agreement.”	Effectuation	Means-driven Building Partnerships
5	PI	“He was a friend of mine from the company I worked before.” “I came to ATOM to help a friend who was looking for a programmer. Then our paths split and I established my company.”	Effectuation	Means-driven Building partnerships
6	PI	“We knew each other from university. We had taken the same course the first semester. After I was accepted here, we came across each other again, during ATOM’s meetings. Since we like similar types of games, we decided to team up. It’s not that strategic.”	Effectuation	Means-driven Leveraging the contingencies
7	STE	“After being accepted here, I met my current partner.” “I said I needed a designer. He was a designer and he was alone. So, he came to me one day and made a speech, something like ‘Hey, I do design and you need someone.’ Then I said yes.”	Effectuation	Building partnerships

Table 18 continued

8	STE	“It was based on mutual interests. After all, when you lose the mutual interests, partnerships come to an end. But how can I put it...everybody needed each other back then.”	Causation	Competitive selection of partnerships
9	JQ	“Our startup experience started at the old company even though we were salaried employees.” “We had to develop and take the key decisions about the game.”	Effectuation	Building partnerships Means-driven
10	EE	“I started off this journey with my childhood friend. He quit the company before we made the first investment. But he was important in terms of initiating the business.”	Effectuation	Means-driven
11	JQ	Participant 1 teamed up with a former colleague of his and started to work with him informally. “We came together on the day I resigned and we’ve been together since.” “We’ve dreamt of and discussed this together.” When asked about whether they have been in any search process for partners he replied “Exactly. We never searched for anyone”	Effectuation	Means-driven Leveraging the contingencies
12	STE	“Since my partner and I stayed together for many years and made a game project together we knew each other. Although we didn’t know each other business-wise, we wanted to work together somehow.” “I have known him since the first year of university.” “We established the team together.”	Effectuation	Means-driven
13	STE	“Since we were in the same department, in computer engineering, we started to attend hackathons and events similar to GGJs...In one of the hackathons our current business idea appeared.”	Effectuation	Means-driven
14	STE	“My friends already had a project they had been developing for a while. I got involved to the project in a casual way.”	Effectuation	Means-driven
15	JQ	“The first founders are childhood friends and colleagues.”	Effectuation	Means-driven
16	STE	“Basically, I don’t like other people’s work. That’s the reason why I work alone.”	Causation	Competitive selection of partnerships
17	PI	“We started this business as three partners. All of us graduated from the same university’s same department. We are all computer engineers. When we were in	Effectuation	Means-driven

Table 18 continued

school, we always wanted to have an endeavor like this. All of us have had interests in games, we wanted to develop games and be in this sector. That's why we came together."			
18	PI	"My partner and I are actually friends from our undergraduate program. Before graduation I started to work in a company...Then my current partner started to work in the same company as an intern. Later when we both graduated, we started to work in the same company full time."	Means-driven
19	STE	"This team started at the end of the third year of university with three people."	Means-driven
20	JQ	"We decided to apply to ATOM with my friends in university ... We discussed this together."	Means-driven
21	JQ	"My husband... and I am one of the co-founders. We can say that it is a family business."	Means-driven
22	EE	"It started as an amateur project with my wife...I persuaded my wife to get involved in game development. She has good drawing skills. Then she quit her job and we became a team."	Means-driven

5.3. Phase 3: Business Model and Product Development

This phase includes the technical process of game development and key decisions such as which platform to produce the game for, genre of the game, and how to generate income from the game. Table 19 illustrates the dominance of the effectuation approach in the participants' decisions regarding the business model and product development phase. In Phase 3, effectuation was employed by 15 participants. Participant 3 summarized their journey as follows:

Business model, game genre, our skills, finding what we are good at...have all been shaped and evolved in time...It took four years to find the current line of products in the market...Everybody's experience has shaped us, influenced us.

Three of the participants used effectuation and causation complementarily in their business model and product development decisions. Two of them were by experienced entrepreneurs such as Participant 13 and 22; and Participant 21 who owns a twelve-year-old company focusing on serious games, mobile and social media games. It is noted that the affordable loss principle can be integrated into deliberately planned, goal-driven, causation type of decision-making as well (Sarasvathy et al., 2014). Such integration can be seen in the decision to change business plans. Participant 21 shared how they evaluated the decision to change their business model by stating: *"it was a risk, but the risk was calculated. Best- and worst-case scenarios were considered...It is important to be focused but one should remain open to opportunities as well"*. In the cases of mixed use of effectuation and causation, actually there was an overlap.

Table 19

The Use of Effectuation and Causation Approaches in the Business Model and Product Development Phase (Phase 3)

ID	Profile	Excerpts	Decision-making type	Decision-making principle
1	JQ	“The business model has changed so much that even I’ve forgotten the initial version!” “We shaped our business model with the help of the experienced people at the accelerator programs”.	Effectuation	Building partnerships
2	PI	“Since we had started to be interested in that business, the goal of being a company which produces full-length animation movies was in our minds... We didn’t know much about how to establish a company or to start a project.” “When we see and talk to them here and there, we learn something from them and actually now I think that full-length movies are very difficult projects to do. Even if it can be done, it will take a long time. Above all, a company of our scale cannot do it!” “We never had a business plan but only focused on making good quality products.”	Effectuation	Means-driven Building partnerships
3	JQ	“When you struggle with technical problems then you may change the game. You cannot control this in the beginning... If you cannot control it, the game moves towards a feasible version... The initial idea might be different.”	Effectuation	Means-driven
4	STE	“We prepared a business plan at the admission process. In our time, a really comprehensive document was requested.” “We didn’t implement the business plan we had prepared since we realized that it would be beyond our capabilities. Instead, we started from the simplest thing!”	Effectuation	Means-driven
5	PI	“I had the vision of making original art games... I didn’t do very detailed research.”	Effectuation	Means-driven
6	PI	“The starting project was a PC game. Its mechanics were ready but since there was no one to do the graphics, we postponed the project” Participant 6 and his team had spent 6 to 7 months for this game. “We thought that we can afford such a time since both of us had other jobs... Now I understand that a big project at the start was a risk!”	Effectuation	Means- driven Affordable loss
7	STE	Participant 7 modified his former game into a project for ATOM. He made a fictitious business plan for the application.	Effectuation	Means-driven Affordable loss

Table 19 continued

8	STE	“I randomly written some numbers for the budget.” “We had around five trials but only the last one has become successful.” “We’ve chosen the mobile market because of the existence of a more established market, because some things are easier there because we thought we could overcome it technically, and also because we had a similar thing that I’d done at hand.” “They wanted us to make a business plan. They trained us. But it was a hard thing to do for a person who has never done it before.” When asked about whether they made a back-up plan for possible failures the respondent stated that “Back-up plans will fail no matter what you do!” “You need to be product oriented in the business model... For me, what was important was to develop products. We’ve worked towards it and we’ve achieved it. But after so many trials and errors!” “E-learning, distant education projects, game projects. We’ve done so many things in six years. I might have forgotten most of it!”	Effectuation	Means-driven
	JQ	Participant 9 and his team had a business plan due to grant applications. “We were very planned and programmed than we generally are when we established the company. Normally I wouldn’t document every detail when I set up a company.... All of our deadlines and tasks were ready!”.	Causation	Goal-driven
10	EE	“Yet we had to give up these plans since they didn’t give us the grant.” “Yes, we had (a business plan). We had a game engine project; we applied with that... We completed that.” “One year after the company’s establishment we took a critical decision and decided not to produce browser-based games anymore and switched to mobile...because we thought that the market was heading in that direction.”	Causation	Goal-driven Predictive view on future
11	JQ	“Actually, the biggest plan, the thing we dreamt of...was to produce a big PC game... With three different games, we’ve kind of made an introduction to it.” “But unfortunately, those games remained at the concept level...because of the lack of time and resources.”	Effectuation	Means- driven

Table 19 continued

12	STE	“Actually, we started with the goal to make a big PC game. But in time, we are fluttering with the wind from there to there.”	Effectuation	Means- driven Leveraging the contingencies
		“Since we were only two people, we thought that mobile was what we could do.”		
		“Our only criterion was to make a good game; a game we can be proud of when we are showing it to people.”		
		“The only thing I planned was to apply to ATOM! Yet I planned to apply with a different project! I mean this project we sold didn’t exist...All the other developments happened unexpectedly.”		
13	STE	“The (monetization) method has changed since the beginning, but what we do remains the same.”	Both	Goal-driven Leveraging the contingencies
		“I mean we knew that that model’s (paid model) failure rate was high. But we wanted to test that because there was no example of it.”		
		“On the other hand, the company could fail... We know it could. There’s nothing to do about it. If we fail, we fail. We will try a new business model; that’s what’s ahead of us now. But these take time and resources... Therefore, it’s normal for some things to fail.”		
		“We came here with a bigger game project but when you start to learn the sector a little bit, you need to say that this cannot be done in the first place, you need to lower your standards.”		
14	STE	“They (the first founders) made several trials before. During their time in ATOM for eight months, they published more than 20 games in order to try as many ideas as possible.”	Effectuation	Means-driven
15	JQ	“No, I didn’t make a business plan. Since I was on my own, I was trying to do many things simultaneously; programming, design, music, sound.”	Effectuation	Means-driven
16	STE	“From the start, we knew that we had to be in the mobile market due to the scalability of mobile games and capacity of the team.”	Effectuation	Means-driven
17	PI	They had a business plan prepared for the grant application, to which they tried to follow. However, this plan limited them since their essential aspiration was to make original games. He said they “took the shortest way possible” to meet the requirements of the plan.	Causation	Avoiding contingencies
		They did market research to differentiate themselves from others.		
		Their current business model was a two-way income stream model; income from their own games and income from subcontracted games. They no longer focus on one project.		
		“We have more Plan Bs now.”		

Table 19 continued

18	PI	“For the first year and a half, we completed lots of education apps. Those were the projects we had in mind before setting up the company.” “When we completed the TUBITAK project, we became free!” “We shifted our pivot towards casual games. There we had several trials. These trials put us on a certain path”. “Always by trial!”	Effectuation	Means-driven
19	STE	“Everything was considered in detail and put into action... No matter how hard you think, there are always external factors. Doing business in a high-risk technology and having an ambitious plan increase the risks even more!” The decision of game genre and mechanics come from the market analysis. After several failures, they started to embrace a "data is more important than opinion" approach. They analyzed the market every day for their games and for their genre, considering retention rates. He said that “for the former business plan, opinions had a bigger role.”	Causation	Goal-driven Predictive view on future
20	JQ	“To minimize the costs, to test quickly, to make many games and to start learning as soon as possible! Knowing this was a plus for us.”	Effectuation	Affordable loss
21	JQ	“We had three-four action plans about the steps that will be taken after the company’s establishment. But none of them happened. But we created other action plans. Those also weren’t realized but we created other opportunities. Because we were knowledgeable and experienced in this field. We entered a business that we thought we knew”. “Lots of our plans which we thought would happen 90% have not been realized.” “For instance, stepping into corporate games was not a subject we considered or planned. It was not in our vision... But when our client requested such a thing, when we completed it, it was appreciated very much and we liked it too. Suddenly, our vision was enlarged. The thing is you need to be smart in such circumstances. It is important to see the opportunities when they arise.”	Both	Goal-driven Expected returns Predictive view on future Leveraging the contingencies
22	EE	“Actually, following the market and making the game that will make you earn lots of money does not interest me. At least it’s not my mission... What I’m good at is seeing the problems and creating innovative and interesting products.” “However, before implementing these ideas, you need to calculate your expenses and income and your burnout range in the development process.” Participant 22 makes forecasts and back up plans. “We took risks which would not kill the company; we built the strategy on options which were probably going to be successful.”	Both	Means-driven Avoiding the contingencies Affordable loss

Participant 19 stated that earlier his view on the future were based on the predictions and plans based on those predictions. Such predictions were not tested in the actual world. They were “*opinions*,” as he stated. It shows that the participant invested in their plans by making cognitive calculations (one can think these activities as cognitive investments) when he said: “*No matter how hard you think...*”. Yet such “investments” remained insufficient and were therefore replaced by a non-predictive approach. As the participant got more experienced and saw that plans mostly failed in the face of uncertainty, he adapted to the environment and decided to control the future, rather than predicting or thinking. Rather he took their strategic decisions in light of their interaction with the actual world; in other words, they started to control the future by testing the market with their games. Here it is important to disassociate market prediction and market testing. The distinction was addressed by Dew et al. (2009, p. 293) as below:

...this is akin to a fashion designer who seeks to tie up large clothing distributors with exclusive contracts and then design the kind of apparel the joint contracts have negotiated (effectual) versus one who tries to predict next season's fashion through market research, invests in developing designs that match predicted tastes and then chases down appropriate distributors (causal).

In Phase 3, the participants’ decisions were affected by various factors. It was observed that the limitations of capabilities and resources of the teams influenced their business models/game platforms and monetization methods. On the other hand, participants’ obligations to the grant programs or investment funds limited their decisions and forced them to take causal decisions.

5.4. Phase 4: Marketing

The marketing phase includes the activities and strategy development process of the games’ market release. This phase is mostly involved with the participants’ game publishing decisions. In the video game industry, marketing activities are planned concurrently with the game development process. Some participants of this study argue that “*marketing is half of the business*” and some of them consider it as the “*most challenging aspect of game development*” since the skills and resources of

interviewees often fall short. Participants of this study also consider the marketing process “*where game development differs from a hobby*”. As a result of the interpretation of the qualitative data, three main marketing strategies have stood out.

a) Publishers: Among game developer companies it is very common to work with a publisher company to undertake the marketing and promotion activities of their games in exchange with a certain amount of share from the sales and IPR ownership of the game. In this agreement, the game is published under the name of publisher company, but the developers’ names are listed in the credits part of the game. In the video game industry, each platform has its own leading publisher companies. For instance, in the mobile market Chillingo, Activision, and Rovio are examples of the leading companies. In PC games Tencent EA Sports and Blizzard are among the most reputable publisher companies. However, closing a deal with publishers is not a smooth and easy process, since games need to stand out from other games, to gain attention, and to be compatible with the publisher company’s target market.

b) Self-publishing: Another common strategy for marketing of games is self-publishing or artist-led distribution. This strategy is preferred by developers who want to be autonomous in their decisions about their game’s communication with the users. Self-publishing or artist-led distribution is one of the indicators of independent game development and it has become a widespread method for carrying out the marketing side of game development thanks to the emergence of new platforms and stores²⁴. Alternatively, entrepreneurs may also choose to self-publish when they do not want to share the income they generate from games. In this study, most of the entrepreneurs self-publish for different reasons.

c) Collaborative publishing partnerships: Game developers in this sample collaborated with their friends for the market release of their games. Such partnerships were based on trust-based close relationships, based on the friendship of parties due to

²⁴ A wider discussion on this topic can be found in Section 3.4 of this dissertation.

being in the pre-incubation center or based on a mentor-tutor relationship between more experienced entrepreneurs and beginner developers. Such partnerships have a distinctive character in terms of their solidarity nature.

The findings of the analysis regarding the marketing phase was that experimenting with the available marketing options was the most dominant marketing strategy. The choice of which marketing methods to use depended on the marketing budget, monetization method of the game, game genre, and the entrepreneurs' resources (e.g., network, business abilities). Except for Participant 18 and 20, participants of this study used the self-publishing strategy at least once. Table 20 shows that in the marketing phase, participants mostly relied on the effectuation approach. Besides, participants' decisions regarding marketing process were triggered by several factors such as their creative ambitions, relationships with game media and people at digital game stores, opportunities offered by various game platforms, their business model and game genre and so on.

The analysis showed that entrepreneurs could use more than one marketing strategy. For instance, Participant 22 worked with a publisher company for a while before starting to self-publish. Participant 4 used more than one marketing strategies due to unexpected events and since they had no budget for marketing, they self-published their games. The case of Participant 4 shows that, they used the effectuation logic since they leveraged the contingencies in their favor although they did not plan to have a publisher role.

Participant 3 also experimented with different marketing strategies for his games. First, he worked with a foreign publisher. Then he collaborated with his friends' company to publish his game. Two years later, he decided to self-publish his game by rejecting an offer on his game. He stated that:

They offered good money. But I had some money from the previous game. Also, because I had been waiting for the moment to publish my own game and create my brand. Maybe it was a little bit arrogant. But I was curious about what would happen, and so on. So, I didn't sell it to them.

The case of Participant 3 shows that creative ambitions and the desire to make a name for oneself also guides the choice among different strategies. In addition to the three strategies above, it was observed that having strong and well-established relationships with people from the local or global game media facilitated the marketing of the games. This was the case for Participants 5 and 9. Participant 9 worked as editor and author in game magazines before he started his business. He benefitted from his network and familiarity of the community for the marketing of his games by sending news to esteemed members of the game press about the release of his games. Alternatively, not having such connections was an issue that participants complained about. For instance, the business of Participant 4 suffered a lot from the bad reputation on the local game media spread out by his former team member and lack of strong relationships with people from local game media troubled him and his team. He stated that *“People didn’t want to listen to our side of the story”*. Consequently, they gave up on explaining themselves to the Turkish media and focused on building relationships abroad.

Similarly, it was seen that having contacts in digital game platforms is a facilitator for self-publishing independent developers, since it increases the visibility and promotion of the game in stores. For instance, when Participant 3 wanted to revive one of his old games in different markets, he only became successful in the one he had connections. The entrepreneur acted on the basis of his means; in this case, his network. Therefore, the decision-making approach was interpreted as effectuation. He stated that:

I published our games on Steam, they did not get much attention... We published them on the Android market, it got 2 million downloads after a short time since we had some relationships at Android as we had with Apple. Because some things work with personal relationships in this business.

Some business models allow for user-led marketing strategies. This was the case for Participant 22, whose business model is based on boxed games for PCs and consoles. Their games have international reputation and have a strong global online community. They benefitted from their user community for the marketing activities of their games. *“Our user community makes our PR activities on behalf of us...It takes the edge off*

market uncertainty a little bit,” he said. Such organic communities may bring unexpected success as in the case of Participant 9. One of their games was translated into Chinese by a user and re-released in the Chinese market without the developers’ information. All of a sudden, they became a local celebrity and one of the biggest publisher companies approached them to publish the game.

Resource constraints play an important role in marketing strategies. Participant 11 started his business with the dream of making a PC game; however, he had to scale down the goals due to several resource constraints. He admitted that they were “*weak on the marketing side.*” The reason for the weakness was attributed to the limited budget for marketing. Further, he considered the success of games with no good game idea and a low-quality content as a “marketing miracle”. Similar constraints deterred Participant 14 to enter the mobile game market. He stated that:

We developed prototypes for the mobile market. Then the marketing aspect of the mobile market scared us a bit. Because it is a jungle out there, you need to be mindful of your steps. Big companies eat the little ones.

Entrepreneurs can benefit from the marketing opportunities provided by particular game platforms. When entrepreneurs have limited resources in terms of skills and/or budget, they evaluate the marketing opportunities of different platforms. Some platforms have better marketing mechanisms to increase the visibility of the game, such as Steam’s system. Participant 14 was a good example of this. He said that they decided to lay aside the mobile game project they had and switched to a PC game project. He stated that:

Steam²⁵ is more merciful towards developers in comparison to mobile platforms. Since its green-light system ensures a certain number of players before game release, it's easier for indies to find a place for themselves.

²⁵ Steam is a digital game publishing and distribution platform developed by Valve Inc.

Participant 9 talked about their experience in alternative markets. He stated that:

Amazon is a very interesting place, for example. The download of the new version of our game exceeded 10000 in one week. Without doing anything! Because Amazon has an automatic suggestion system.

Technological advancements have a profound effect on marketing strategies. One of the most important developments for marketing activities is the increasing integration of data-driven tools for market research and marketing strategies. In data driven marketing method, the data is extracted from the market via specific analytical tools embedded in the game. Yet, in order to obtain this data, entrepreneurs have to develop games and put them on the market. In this method, each game becomes not only a product but also a tool for market exploration. Participant 15 is one of the co-founders of a mobile game company that uses this method extensively. The company developed an analytical base to understand the correct marketing strategy. He stated that “*Each of our games is an experiment.*” Moreover, Participant 15 noted that being analytical helped them overcome many uncertainties. In particular, they consider that this method is more appropriate for free to play (FTP) mobile games; since FTP games can be accessed by a greater number of users it makes the data interpretation more reliable. Their general approach was not “*planning ahead*”, but “*solving problems when they come up*”.

Participant 9 talked in detail about the dynamics between the game genre and publishing strategy. He stated that:

If your game gets 10 million downloads, you will earn good money with advertised games. But in addition to a number of downloads, in this model it is also important how many times you can make the player return to the game, how long you can keep the game on, how many ads you can show per player. These are relatively easier in casual games. Especially if there is competition, people turn the game on many times.

Participant 18 collaborated with a company in METU Technopark for publishing his game. Due to an unexpected development, he had to pull back his game.

The case of Participant 18 shows that game developers eventually abide by the publisher's decision.

A very big company... sent a warning mail saying that "Such and such lines are more than similar to our games"! We changed those afterward. We changed it and released it again. But it didn't satisfy them enough. Another warning mail was received. At that point, a decision was taken. Although it was not our decision, after all, we had a publisher and they were in favor of retracting...Of course, since it is their account, you need to do as they say. But if it was me, if the account was mine, I would probably not retract it.



Table 20

The Use of Effectuation and Causation Approaches in the Marketing Phase (Phase 4)

ID	Profile	Excerpts	Decision-making type	Decision-making principle
1	JQ	“Our aim was this; first we make deals with a few publishers, these publishers take the games from us, at least there...a user community will be formed... We couldn't do that either! Those deals are not easy to make after all. Publishers do not like every game.” “We have published seven-eight games until now...It's hard to make money from games, that's what we see now. It's not easy”	Effectuation	Means-driven
2	PI	“In essence, we are people who want to sit down and do their jobs. That's why we don't understand marketing or self-promotion. We almost never do such things.”	Effectuation	Means-driven
3	JQ	“We have learned that the strategy of making money from paid games is different from free to play games. With this realization, we started to talk about working with a publisher.” “Then there is another company just located near us, they published the game.”	Both	Expected returns Means-driven
4	STE	“First, we thought that we could not succeed without a publisher, so we made an agreement with a publisher but that agreement was canceled since the guy we were in contact with was fired from the company.” “We could have earned more with a publisher but I think it has turned out better this way...because we learned the market to reach...Our popularity has increased and our relationships have developed. We even started to publish other people's games.”.	Effectuation	Leveraging contingencies
5	PI	“While you are developing the game, at various points, you give notice to the media... Marketing of the game is not done after the game is completed. I mean, once you have something to show about the game you reach out to the media. That way you start to get people's attention.”	Effectuation	Non-predictive control

Table 20 continued

7	STE	“I published the improved version of my first game. Then it had no success at all. I put ads in it for the first time. Google Ad Mob. In that process, I didn’t earn anything” “We discovered a game that was featured in Apple, it was downloaded 40 thousand times per day around the globe, but it was not in the Android store. We considered this as an opportunity and we developed it in one night without sleeping. We published that.” “There is another company in the Technopark, we worked with them for a while. I mean they tried to be our publisher; they approached us with this offer. We got excited because it was going to be an opportunity to earn money for the first time. We made a pre-release with them and it failed.”	Effectuation	Means-driven Building partnerships
8	STE	“We are publishing others’ games, too... We have an income sharing model; if the game sells, we get our share, too.” The participant stated that, instead of waiting for being found by customers, he seeks for them. “We are reaching the companies.” “I find relationships and find jobs via relationships. I make money and I invest in my business. It has always been like this for me.”	Causation	Goal-driven
9	JQ	“It was published on Google Play. Then in time the game became popular in a pirated way... China Mobile contacted us about the distribution of the game.” “We’ve had an e-mail from Chillingo, an invitation to get in contact...At that time, Chillingo wanted to make a paid game. We wanted that too!”	Effectuation	Leveraging contingencies
10	EE	“We are generally close to market trends... We track analytics in detail. As a result of the analytics, by looking at the player inclinations, we constantly change the monetization and hardness of the game” “In the new investment process, we decided not to intervene in this aspect... We want to be on the production side, we will assign the marketing to our partners. In this way, everybody will work on what they are good at.”	Causation	Goal-driven Competitive selection of partnerships
11	JQ	“The reason why we are weak in marketing activities is the fact that we cannot spare resources on it. Especially in the mobile market, one or two thousand liras do not carry you to a good position. For that, you need to be able to discard 10-20 thousand	Effectuation	Means-driven

Table 20 continued

		liras. For start-ups like us who try to stand on their feet these levels are not possible, unfortunately.”		
12	STE	“In the 2016 Gamescon we showed our game to a few publishers. They liked it but suggested to make it free to play... We weren’t very interested, to be honest. Because instead of doing it with a complete stranger, doing it with him (another developer in ATOM) seemed more reasonable to us.” “Then he (the developer in ATOM, that Participant 12 wanted to collaborate with) was busy with the paperwork of his company and we couldn’t work with him. But he directed us to people in the Apple store... When people there liked the game, it was featured globally.”	Effectuation	Means-driven
13	STE	“We met lots of people from Apple and Google during Webrazzi Arena ²⁶ .” “We didn’t make a big advertisement campaign. The first week only 100 people had downloaded our game, it was very little.”	Effectuation	Means-driven
14	STE	“We look at similar games. How successful they are, which market they are in? I look at the sales numbers. For instance, right now I follow Kickstarter projects.”	Causation	Predictive view on future
15	JQ	“We’ve published nearly 20 games.” “When we want to do the marketing of our game, we need to give advertisements again. Then we need to sit down and constantly analyze our advertisement income and advertisement costs. There are ever-changing issues. It’s a very costly and demanding task.”	Causation	Goal-driven
17	PI	“We noticed it when we finished the game. A pretty good game had come out at the end of the day... but we were really empty on the marketing side.” “Actually, it was published in every magazine in Turkey. We tried to make it heard as much as we could.” “Now we can earn money because we have become strong on the marketing aspect.”	Causation	Goal-driven Competitive selection of partnerships

²⁶ Webrazzi Arena is an entrepreneurship contest in Turkey. For more information, go to <https://summit.webrazzi.com/en/arena> Last access: 10.06.2019

Table 20 continued

“They are carrying out the publishing and marketing activities and we are carrying out the development. They’ve built expertise in marketing and we’ve built expertise in development. We have caught a synergy like this...Both teams are doing their best. Now games produced and published games are pretty successful.”			
18	PI	“With the game in 2006 that we published via a publisher we experienced a similar problem.” “My relationship with them can be considered as...a publisher relationship.” “A publisher relationship was born from there with the company here. They had been successfully featuring the games until that day in IOS. The feedback is all positive. The company we collaborated with was nice.”	Causation Goal-driven Competitive selection of partnerships
19	STE	“We follow our game because the following steps of development are very critical once the game is on the market.” “We develop our games completely based on data.”	Causation Goal-driven
20	JQ	“It was published from their account with my team name.”	Effectuation Means-driven
21	JQ	“We prefer to be digital as a company. Now everything is managed on digital platforms. That’s why we show ourselves and our products in the digital world.” “People know us through our games.”	Effectuation Means-driven
22	EE	“We thought that a publisher was an absolute must! We were naïve! The publisher company became a problem after a while. They caused technical problems as well as misinformed us about some market opportunities... We published the game before it was ready due to our obligations to the publisher. But this was wrong! After all, the risk is ours; it’s our company name. You need to be the final decision maker!” “Now we are publishing our games...”	Causation Goal-driven Avoiding contingencies

5.5. Phase 5: Network Establishment and Reconfiguration

Who entrepreneurs know have an influence on the decisions they make and the opportunities they create. Networks are counted among the main tools for expanding resources in effectuation theory as well. The participants were asked about what percentage of their time and effort they devote to networking. The analysis showed that participants' efforts for networking changed between zero to 60% of their time. Building partnerships has a role in decreasing uncertainty. Participant 13 stated that: *"From the investor's aspect, the only factor that can decrease the risk for venture capital is knowing that person. That's how they give you money."* However, participants' approach towards networking, including its importance, intensity, and focus evolved throughout their entrepreneurial journey. Participant 14 stated that:

Firstly, for a beginner, it is very important for learning the business. You need to see many successful and unsuccessful people to make a roadmap for yourself about how to get ahead. When you think about marketing, the network is important for finding publishers. For example, if I don't know someone but someone I know knows a good publisher or people who can publish my game, you can find your way somehow. A good publisher, especially in the mobile market, directly means success. In some way, publishers made you earn money because they need to earn money as well. Networking is pretty important in that aspect. Both for knowledge accumulation and for commercial success.

The intensity of the networking activities changed throughout the course of the business. The interviews revealed that entrepreneurs have different perspectives on networking. Regarding their perspectives, three types of behavior were observed among participants. First, there were those who appreciated the importance of networks and sustained this mindset before and after they stepped into the video game industry as entrepreneurs. This group of entrepreneurs chased after contacts and connections as much as they can.

The second group of entrepreneurs was composed of those who underrated the importance of network and/or knew the importance but did not pay much attention to it. However, they acknowledged the key role of networking after they progressed in the industry and increased their efforts to establish and expand their networks. For

instance, Participant 2 values artistic independence of their products and has negative emotional associations towards networking. He mentioned that as a team they used to consider networking as unnecessary and believed that if they did well in their business everybody would come and find them. Such factors directed him towards adopting a refrained attitude towards outsiders, as in the causation decision-making logic. He stated that *“Maybe the word ‘networking’ irritated us...However, now I understand that knowing people and talking with people is extremely important”*. As he reaped the benefits of interaction with people, he started to adopt a more welcoming attitude towards networking. It was observed that the small size of the company/team, resource constraints in terms of time, skills, and budget, and personal traits such as shyness and introversion reflected themselves as barriers for the networking process. Still, in the networking phase, most of the participants stated that they are introverted people so that building relationships, reaching out for people and committing into sustaining the relationships can be challenging for them.

A relatively small group of entrepreneurs experienced a change in the opposite direction. They were all informed about the vital role of networking; however, after a few years of experience they started to decrease their efforts for networking and made do with the relationships they had rather than finding new ones. Participant 19 is a good example of this. He stated that *“There are lots of exaggerated people in the sector and you need to filter them out.”*

The interviews revealed that entrepreneurs also undertake purposeful networking. For instance, searching for a particular person or group of people to solve a particular problem that entrepreneurs faced or a particular resource that entrepreneurs lacked were the prominent goal-driven networking activities. Participant 3 stated that when he needed a resource (a person) he could find it easily in his local ecosystem since *“...everybody knows each other via GGJs or other events”*.

In Phase 5, the distribution of participants’ decision-making approach between effectuation and causation was almost even; however, effectuation was employed one more time than causation. It can be seen from Table 21 that effectuation was used by

11 participants. A mixed decision-making logic was used by one participant. Causation was used by ten participants. In cases where effectuation and causation were both used, a convergence towards a certain type of decision-making approach can be observed. For instance, Participant 20 established his network in an effectual way at the start and automatically gained access to a beneficial network simply by being located in ATOM. Being connected with “important people in the industry” provided sufficient resources to him in terms of a network. Upon his realization that the game development experience was far more important than whom he knows, Participant 20 reorganized his priorities and decided to focus on his close relationships only. In this case, one can see that Participant 20’s networking behavior had changed towards causation. As can be seen from Table 21, a decrease in effectuation and increase in causation in networking behavior was also the case for Participants 8, 10, 17, 18.

To sum up, networks were considered as a part of marketing strategy, a source for motivation, inspiration, and new ideas, access to information, and free-lance job opportunities, and a means for finding solutions at the challenging points. Close relationships provided the source of reference for collaboration decisions such as hiring new people, finding investors, and establishing business relationships. The local network in ATOM facilitated effortless networking and played a time-saving role for networking activities.

Table 21

The Use of Effectuation and Causation Approaches in the Networking Phase (Phase 5)

ID	Profile	Excerpts	Decision-making type	Decision-making principle
1	JQ	“What I learned from the program I went in America was this: “Meet as many people as you can. You may not do business with that person, but he/she might have an acquaintance. He/she may remember you in the future and he/she might introduce you to each other. That is the idea. I agree with this now.”	Effectuation	Building partnerships
2	PI	“It (networking) didn’t exist in the beginning. Indeed, we are all very introverted. Moreover, I always used to say, “There is no need such a thing of networking if you do your job very well; someone will come and find you.” I mean partly it’s true but maybe the word networking irritates us. Meeting with people is important...It’s important to know people. Besides, you cannot know what comes out from it.”	Effectuation	Building partnerships
3	JQ	“I know people more or less from here and there. If I don’t know him/her I can meet and get to know him/her. Not a big deal.” “No ²⁷ . Because you cannot know. You cannot know without actually working with that person. He/she might act differently while he/she was working for other people... The criteria could be the previous works. You might reason like if he/she had done this, he/she can do that as well. Then, of course, you look at his/her personality.”	Effectuation	Building partnerships
4	STE	“I think we are very introverted. I think we should spend more time on this.” “Now we are more skilled in networking. Fairs abroad were beneficial for establishing networks... You meet so many people there. Even if you speak with an irrelevant person	Effectuation	Building partnerships Leveraging the contingencies

²⁷ Answer of Participant 3 to the “Do you have certain criteria for collaboration?”

Table 21 continued

	you learn to see things in a different view...Now I understand that spending time for networking is important.” “Actually, most of our contacts are by coincidence.”		
5	PI	“If you don’t have a network, you cannot let people know of your game even if you’ve made the best game in the world!” “There’s no change in my perspective. I’ve always thought that meeting with the right people is important.” “I never eliminate people.”	Effectuation Building partnerships
6	PI	“Networking does not require so much time. People here are very eager to help. I think ATOM’s network is enough.” “We didn’t have a strategy actually.” “Our relationships have developed in a natural way.” “There wasn’t (a criterion). Neither in the beginning nor now.”	Effectuation Means-driven
7	STE	“For instance, if we hadn’t known someone from Apple, we would not have made money from this business model...I mean, after all, we follow this business model because we know someone. In this aspect, networking is extremely important for us.” “Network is very very important.” “It takes 30% of our time...It’s not much for today but if our business scales up, we need to make a division of labor for this...Enthusiasm is the biggest criterion for us. He/she should embrace the business. That’s what we really want.”	Effectuation Building partnerships
8	STE	“It takes 50%...That much is necessary. I don’t want to strive for more. The more people you know, the more they ask you for something.” Participant 8 mentioned that he did not have an intense effort for meeting new people since he entered the video game industry at the early days of industry’s development and he already knew a great deal of people in the industry. “I’ve met everyone in this sector ten years ago.”	Causation Competitive selection of partners
9	JQ	“We are not really good at this aspect. I am too lazy to meet new people.” “We have this unfounded confidence that if you are successful people will find you.” “Some people sit back for two months after developing a game, but I deliver the complete game seamlessly in three months. Our personal characteristics is not compatible with start-	Causation Avoiding the contingencies

Table 21 continued

up mindset. I don't like to show a half-finished project to people...It will be a waste of time for me and for them as well."			
10	EE	"We have never been perfect on this side. We know its importance. We've tried it from time to time. But we want to be in the production side of the business...because such relations wore us out. ... We've decided to cut our ties with the outside." "For investment, I've reached out to my business network all the time... We've never searched for it extensively; generally, they contacted us. For hiring, we use regular platforms like LinkedIn."	Causation Competitive selection of partners
11	JQ	"All the work we've done to date is based on our earlier relationships." "We select the people we work with among our existing relationships. They have been enough until today. We didn't feel the need to reach for an upper layer of friend circle. Friends or friends' /friend level of acquaintanceship was enough for us." "There are many (chance-based relationships)." "Personal harmony and productivity are our criteria. If you cannot communicate and spend time together with a person you cannot produce something together." "We are a little bit weak on this part. We prefer to retire into our shells and work from there; maybe because of our personal characteristics."	Effectuation Means-driven Leveraging the contingencies Building partnerships
12	STE	"Not so much of my time. It is my regret. I should have done more networking!" "Because the more people you know, the more the tasks are finished... The better your network, the better your knowledge." "Because for example if we have entered here a year later, if these people weren't there, this game would not be released." "We didn't have a strategy. We didn't know whom to reach for. ATOM guides you for this here."	Effectuation Means-driven
13	STE	"I think networking takes 50% of my life. I know that it brings advantages to you, but they have expectations from you in return... You need to make them happy...I go to Istanbul one day a week to please my network." "Normally I'm an introverted guy. Meeting with new people is hard for me!"	Causation Competitive selection of partners Goal-driven

Table 21 continued

		“You find someone who is not in your network. Then you start to think, who can provide me a warm connection with this person? Then you look at your network.” “Generally, we are in the search of network or someone. There is always a goal. You try to reach that goal... Plus, there’s no time!”		
14	STE	“We didn’t have too many strategies to gather the resources we need, it all happened randomly actually. We didn’t make big expenses; we didn’t need to reach for people too much.” “Actually, I can say that it’s 50% (of their time and effort for networking). Because this is also a social business; you need to get along well with people.”	Effectuation	Means-driven
15	JQ	“Actually, it’s very similar to learning by crushing. You encounter a problem, then you look for a person who solved it before or who might have knowledge about it. Then you contact that person. He/she may direct you to someone else. Or you ask for the help of people you know to reach that person... But always the problem comes first. You reach for the solution after the problem.”	Causation	Competitive selection of partners Goal-driven
16	STE	“I’ve spent very little time for networking; except our meetings at ATOM once in two weeks.” “It was my choice. I wanted to focus on developing the game; I was planning to spend time for such things once the game was developed to a certain level.”	Causation	Goal-driven
17	PI	“For a long time, we didn’t see the fruits of networking. But at the end of the day, I can see its benefits. It both creates business opportunities and increases your network even more, which brings other opportunities or provides an experience.” “While we were in the E-Tohum program it was all based on networking; we tried to meet with everyone... Since then I’ve become a little bit more selective.” “I don’t chat with people outside the sector.”	Causation	Competitive selection of partnerships
18	PI	“Before 2015, where there was a conference, I was there!” “At first, we didn’t say no because we had no network; we were trying to expand our network. Then we started to eliminate them.”	Causation	Competitive selection of partnerships

Table 21 continued

19	STE	“At first, we considered the network as a mean for jobs or investor relationships or to sell the products we made. But we’ve stopped this. Now we are working on deepening existing relationships...I have no effort to meet new people.” “From the first day, we’ve tried to expand our global network, too, not only local.” “We do this; we look for the person who can do this job best, can we access this person? Generally, we can. If not, we contact a person who can make us access him/her.” “At first, it was 100% networking. But this is very wrong...In time, it has decreased to 20%, 10%, or maybe 5%.” “But we never do this; we never put more than one person into a competitive space, selecting the best among them and send the others away. We don’t have this kind of view.”	Both	Goal-driven Building partnerships
20	JQ	“We are weak on this aspect...Thanks to my time in ATOM, I’ve developed a particular community. I’ve met with people who are interested in this job seriously...Now I don’t think that networking activities, listening speeches, joining events are very important. The challenge is to put these efforts into commerce.” “I’ve decreased my network gradually and now I can keep it under control. I don’t have to deal with people I don’t want.”	Causation	Competitive selection of partners
21	JQ	“We attend relevant events but we don’t have a serious effort for this...Rather than going to meeting A or B, we prefer to be active on the digital platforms. Because the world operates on digital. We are trying to raise this (networking effort) to 90%.”	Effectuation	Means-driven
22	EE	“Since our business model is based on customers, networking is not that important. The network is important as long as it feeds you with new ideas, opportunities, or source of motivation...If you have a bad game, it doesn’t help even if you have the best network in the world!”	Causation	Competitive selection of partners

5.6. Phase 6: Crisis

Unexpected events, limitations in resources and capabilities, accompanied by various processes of uncertainties were experienced in succession by some of the participants of this study. Such periods resulted in a major failure with concerns about survival, a short-term crisis, or a decrease in productivity. In these periods, participants had to take critical decisions for the survival of their businesses. In this phase, the triggering factors for crisis are grouped under five categories. Below, these factors and number of times which participants experienced them, are provided.

- Factors related to uncertainty and unexpected events (10 times)
- Financial bottlenecks (10 times)
- Problems within the team (8 times)
- Business model failures (7 times)
- Loss of motivation (4)

Participants used various strategies to cope with the challenging circumstances they faced. In Table 22, the decision-making logic for this phase is presented. In this phase effectuation was the dominant decision-making logic. 13 participants' decision-making approach in crisis phase was coded as effectuation. Eight of the participants used effectuation in their critical decisions at the crisis phase.

It was observed that crisis periods did not take place due to only one reason. Especially the participants who had more experience in the industry mentioned several crisis periods stemming from various reasons. Half of the participants found themselves in a type of crisis due to the combination of several triggering factors. On the other hand, four of the participants experienced multiple times of crisis due to the same triggering factors. For instance, Participants 3 and 5 stated that they had been through the crisis a few times due to decreasing cash flow throughout their timeline. Participant 2 found himself in a crisis due to the unforeseeable nature of the schedule of the projects they undertook and unexpected time extension of technical tasks. Participant 20, on the other hand, found himself in crisis due to the departures of multiple team members.

The case of Participant 20 was an example of multiple crisis periods due to team members quitting, which taught him to avoid contingencies by becoming self-sufficient and trusting nobody to overcome adversities.

In the cases of Participants 1, 7, 9, and 12 the motivational reasons of the crisis were emphasized. Yet the analysis showed that motivation on its own never marked a crisis period. Rather, it was an accompanying factor to uncertainty, business model failures, and cash flow problems. Therefore, it was examined under the corresponding heading of triggering factors.

In the crisis phase, it was observed that entrepreneurs use effectuation and causation principles consecutively. For instance, Participant 1 first reached out to the user network of his game to mitigate the damage of the rejection from Apple. When he saw that it was not solving the problem, he utilized a goal-driven approach to survive the crisis. Participants who experienced a crisis due to more than one triggering factor used effectuation and causation concurrently when they responded to challenges. Five of the nine cases where participants used effectuation and causation included a crisis factor related to team members.

Participants who were in a crisis due to a misjudgment of the project requirements or unforeseen technical challenges decided to modify their project into a version more compatible with their resources. Therefore, they cancelled the bigger game project and switched to a smaller one. This strategy implied that entrepreneurs were acting based on their means, and such decisions were considered as effectuation. The examples of this can be seen in Participants 2, 6, 14, 16, and 18.

It was also observed that entrepreneurs adapted to a challenging environment by moving to a more flexible approach. It can be seen from Table 23 that Participant 2 employed the tactics of “lowering expectations” and “flexible planning of tasks” to move on. On the other hand, “the yielding” tactic was used by Participant 4 in their decision to stop trying to fix their public image in Turkey.

Crisis periods also meant learning opportunities for entrepreneurs. In such moments, they drew lessons from failures, tested their entrepreneurial capabilities and game development capabilities, the commitment of their partners, and business ideas. In the cases of more experienced entrepreneurs, one can also see major shifts in their decision-making approaches. For instance, the crisis periods of Participant 8 taught him to always monitor his relationships. The experience of Participant 10 taught him to be more cautious regarding business agreements with other parties and not to focus on one project at a time.

5.6.1. Uncertainty

Uncertainty reflected itself as the difficulty of prediction and a disruptive element for planning work schedules in terms of working hours and task sharing, as well as missing out business opportunities. The statement of Participant 2 is a good example of this. He stated that:

We cannot know when the job will come to us. See, for example, even today I cannot tell you about this! For example, you take a job, then another one comes. You have to reject the second one even it is better than the previous one! Or you accept both. Then you need to work until morning. It's hard to do them with three people.

The level of uncertainty in the video game industry can be seen in the difficulty in developing a success formula. Cancellation of business deals unexpectedly or in the last minute can also drive participants into crisis. Changes in the executive board, miscommunication within the units of multinational game and/or software companies that entrepreneurs work with, and exclusion of the entrepreneurs from the flow of information about the latest developments in the companies they collaborate were the common themes of disappointment for the participants of this study in their relationships with bigger companies at both the national and international level. The findings reflected that entrepreneurs were not prepared for such a downturn and this resulted in the loss of time, resources, effort and motivation of the participants of this study.

Participant 4 noted their experience as follows:

The deal with this publisher was canceled. Actually, the story starts like this: the publisher company discharged the person responsible for us. Once he was gone, they divided his portfolio between other people...and ours was cancelled.

They also witnessed a similar event with a multinational company as well.

We had big challenges there because we did not know how to work with a big foreign corporate company! When they saw our game, they liked it very much. Then they assigned a producer to us. We started to work with the producer and developed the project to a certain point...In the last month, they were still requesting changes on the controls of the whole game! They used to say "Let's try this or that." ...It was fine; we were doing it anyway. We had no problems with it...On the last day, the board members contacted us and said "Let's call off the project" ... If they had notified us earlier, we could have planned a schedule accordingly or we could have shortened the game or whatever. It was disappointing for us.

A similar event was experienced by Participant 9 as well. He said that:

All of a sudden, the guy we'd been talking for a while had disappeared! In the meantime, we were talking with A (another person in the company); she said "Everything is fine, we are taking care of it." One day we were discussing it with my partner... (tries not to laugh out loud) I said "S., come here and look at this! This is unbelievable!" Everybody in Chillingo, including high-level executors, were discharged by Electronic Arts. This, I mean...was an ultra-misfortune! We've experienced a lot of these throughout our careers...That was our classical luck as we mentioned to you earlier.

The statements of Participant 9 were illustrative in terms of seeing the commonality of similar circumstances. He stated that:

When you work via sub-contracting, they can cancel it just when you are about to take the project. Someone just walks in and cuts out your business. We've been through this a lot...We signed a pre-agreement; they invested some money. We were supposed to grow the business and move on. Then the manager there changed. The new manager canceled the business.

It was observed that business agreements related to experimental technology infrastructures also imposed uncertainties. Participant 10 relates their experience which resulted in a crisis for their company:

Microsoft had a technology called Silverlight back then. The USA was directly supporting us to develop games with this technology. Supposedly, we were going to be their show project. Three months before we released the product, they announced that they had pulled their support for this technology!

Participant 10 experienced a similar break down of business agreements with local companies and organizations:

For instance, there is an epic fail. We developed a software that translates sign language into audible sign language...We had lots of negotiations with them, everything was prepared, and so on. A serious project budget was identified and approved on both sides. When we came to the contract phase, for some political reasons, they didn't give the job to us. As I understand, our being from METU made them uncomfortable.

Macroeconomic conditions also contributed to the uncertainty and caused a crisis for some participants. It must be noted that although the participants go through the same macroeconomic conditions and political environment, not all of them are affected equally. Only two participants identified macroeconomic and political conditions as direct causes of their business crisis. For some participants the unstable environment caused them to shut down their business. Participant 21 mentioned three big crises they had been through, two of which were related to external factors. She stated that “*There was a big crisis in 2008. It affected everyone. We had a problem due to exchange rates.*” Another crisis was due to the changes in regulations announced by The Information and Communications Technologies Authority²⁸

Participant 1 had already been through a crisis period due to the failure of their business model and being excluded from the Apple market due to an involuntarily violation of safety regulations. As they tried to cope with this situation by their means at hand, i.e., their user network to back up their product and fix their image, they did not get the result they wanted. Then they decided to make a comprehensive transformation in their product infrastructure by applying for an R&D project grant to get the necessary funding for the abovementioned transformation. However, the coup attempt in Turkey

²⁸ English name of “Bilgi Teknolojileri ve İletişim Kurulu”

on the 15th of July, 2016, resulted in extensive staff changes, interrupted the bureaucratic process, and stalled the economic activity for a certain time. Participant 1 stated their experience as below:

By the way, we were really confident with this proposal for the TUBITAK 1507 grant. We had prizes. We received the Techno-Entrepreneurship Grant and succeed, and so on. I will write here as “A coup happened”! July 15...That coup affected everyone incredibly. It affected everyone but it destroyed the micro companies! While we were waiting to be accepted, the process took longer, and in the end, they didn’t accept us.

5.6.2. Financial bottlenecks

Participant 3 and 5 experienced crises several times due to problems with their cash flow. In those times, while Participant 5 relied on his family network, Participant 3 continued to try making successful games on the market; his source of resilience was his passion for games, sub-contracted jobs he took, and prize money he had won in competitions. Financial problems were also experienced by Participants 1, 4, 8, 9, 11, 17, 18 and 19. For instance, Participant 9 used personal savings to meet the company expenses, after a period of silence from TUBITAK whether or not they will get the grant money. Participant 9 stated that:

We thought that something was going on but they did not inform us. There we saw that everybody was in the same situation. Everybody was asking each other to understand what was going on. That was the point we understood that nothing will come out of this. We said “Let’s take care of our business”.

The crisis periods were also accompanied by depression. In some cases, participants mentioned that they had to manage the pressure from their close relationships who argued that they should move on to another business since they did not earn enough money. Indeed, one of the participants stated that his family members made job applications in his name various times. Participant 9 survived the crisis by making decisions based on the worst-case scenario.

Participant 11 also made personal sacrifices in terms of taking extensive loans to keep the company alive. Their network, especially past relationships, functioned as a means to take sub-contracted jobs. In one of their collaborations with a university, they

experienced problems related to the delivery schedule of the project. This experience caused a change in their perspective towards agreements and they approached with them more caution to avoid potential delays on the project.

Participant 19 stated that *“It’s happened many times²⁹. Now that we have a company, cash flow is always an issue. You need to pay the salaries; you need to survive.”*. Upon this realization, they started to take jobs from outside but he emphasized that they were selective in these subcontracted jobs. He explained that *“we only worked in projects which were in the game industry and in domains which we wanted to develop ourselves in or seen some sort of value”*. In their strategy, both a means-driven approach and a goal-driven motivation were present. When Participant 19 and his company kept their heads above the water, they made a re-evaluation (similar to strengths, weaknesses, opportunities, and threats analysis) of their condition and decided to stop taking subcontracted jobs; instead, they decided to focus on their projects for the next six months. At this critical point, the participant acted with a causation approach since their decision involved an inspection about whether the company was heading towards the desired route. In the next critical decision point, they decided their target market by conducting various tests on the market, rather than prediction or paying attention to market reports. In other words, their actions were shaped by the market research which is based on interacting with the real world as described by “non-predictive control” principle of effectuation. Therefore, their decision-making logic in the crisis period was coded as “both”.

5.6.3. Team-related problems

Participants 8, 11, 14, 17, 20, 21, and 22 also experienced crisis due to team related problems. The case of Participant 4 was unique in terms of the extent of team conflicts which resulted in further uncertainties, missed business opportunities, and financial

²⁹ The participant responded to the question, “Do you remember a moment when you thought that the business was getting out of control, like a panic moment ?”

problems. Participant 4 had a game company which was initially started with three partners. They parted their ways with a former partner due to a lack of commitment and ongoing communication problems. He explained the problem like this: *“Actually, we had been working on this for years but there were a lot of troubles...We were always coming back to where we started; we could not make progress.”* Participant 4 summarized the problem as *“not being good at making decisions as a team.”* After this separation, the former partner started a negative campaign in the domestic game media and even reached foreign publishers. Participant 4 and his team coped with this situation by re-branding their company and changing their focus to international markets.

5.6.4. Business model failures

Participants 6, 7, 13, 15, 18, 19, and 22 experienced crisis periods due to the failure of their business model. For instance, Participant 7 went through a phase of psychological depression due to the failure of their many trials. In those days, mutual encouragement between the partners provided the resilience to move forward. In the meantime, Participant 7 and his business partner tried to learn key marketing strategies such as app store optimization through several articles. Yet these strategies did not bring success.

Actually, we thought that we'd learned a great deal about app store optimization and we really put our minds to it...At first, nothing came up. But after a month or so some downloads started. We couldn't figure out why. It's a bit of coincidence.

They overcame the crisis period when they were introduced to the IO genre games (games which use IO extension in their names) by an entrepreneur who was an ATOM graduate. By benefitting from the local ecosystem in the METU Technopark, they found their successful business model. Their response to uncertainty represents a case for means-driven action. He stated that, *“As I've said, we were looking for a ship and we found it.”*

Participant 13 had a relaxed attitude toward failure. He could not mention a major negative unexpected event; rather, he gave examples from positive cases. However, they were in a challenging period due to the failure of their business model.



Table 22

The Use of Effectuation and Causation in the Crisis Phase (Phase 6)

ID	Profile	Excerpts	Decision-making type	Decision-making principle
1	JQ	“On the technical side, being rejected from IOS by Apple, upset us very much!” “Apple has this test user system; it has 2000 test users limit. We guided people who reached us via e-mail to download our application. In the early days, they supported us.” “The problem was related with our main mechanics. I mean, we cannot fix it... The application needs to be re-written but it's all about motivation and finance” “We wrote a project for TUBITAK to move the game to mobile... Then there was this coup attempt! At that time, the process took longer and longer. It took one year and they didn't accept us! Since we didn't get the grant our motivation fell down, also our time in here has expired. Now we are thinking about what to do. We don't seem to continue.	Effectuation	Means-driven
2	PI	“...Doing even the simplest project is very difficult actually, since there are lots of unforeseen factors”. “Now we are thinking like this: We will encounter at least one problem with all software developers. We start our search with this assumption in mind.”	Effectuation	Affordable loss
3	JQ	“There was the Fatih project...I delivered one or two jobs for them, to stay afloat.” “Because I was broke...back in time, from now on if we fail, I will only laugh, probably.” “There's no one to become unemployed here, we have no investment, etc. It's only the brainwork... We won't fail unless we gamble.” “We responded to everything with maturity.”	Effectuation	Affordable loss Means-driven
4	STE	“The former partner started to provoke people on the media...claimed that this game is completely stolen” ... “We tried to reach the media but we couldn't; they didn't want to listen...After a certain point, we said “Okay! Never mind! Let's not deal with Turkey!” “Because of such reasons, our relationships with publishers were harmed, so, we self-published	Effectuation	Leveraging the contingencies

Table 22 continued

		our game. It did not turn out badly...Also, we started to learn who to reach, what to do, we started to learn the market.” “We couldn’t make proper allocation of the budget to the tasks. We made wrong expenses, hired someone but he/she wasn’t of any use to us. Now we are trying to fix this...but this is the source of all of our problem.” “We never yielded to despair...Just when we thought that we were going to fail, a solution as started to appear.”		Non-predictive control
5	PI	“It’s hard to specify a certain point on the timeline, but at that time I borrowed money from my family.”	Effectuation	Means-driven
6	PI	“Actually, it was good for me to start a new project, it increased my motivation. And we understood that that project could not be done without a visual artist.”	Effectuation	Means-driven
7	STE	“We had no self-confidence since had no success... We were lost in the ocean and looking for a ship to take us to land.”	Effectuation	Leveraging the contingencies
8	STE	“I should have thought that trust is not an obstacle to control. None of this would happen if I had truly evaluated them and parted earlier.”	Causation	Avoiding contingencies
9	JQ	“Upon financial troubles, periods of uncertainty gave us psychological uncertainty and depression. Our families told us to quit this job and find a proper one.” “Our survival instinct is strong.” “At worst, if we failed, we had a good business model that could earn money, at worst we could sell this to someone.”	Effectuation	Affordable loss
10	EE	“None of our plans were realized!” “In the first story I told you, we had no back-up plans...But for the unexpected events afterward, we had ongoing projects in the background.” “We proceeded with caution after we paid for our mistakes through our noses!”	Causation	Avoiding contingencies
11	JQ	“We kept the company so big for so long; we depleted our resources rapidly...because we thought that there was potential... This was our strategy. It failed.” “My partner and I are too kind to refuse a request.”	Causation	Avoiding contingencies

Table 22 continued

		“I was expecting some delay but not that much...It becomes a lesson for you; you start to try to foresee poor conditions. Automatically you become overprotective but this can lead to challenges in seizing opportunities.”		
12	STE	“Each of us experienced deadlocks consecutively because we could not know what we were doing right or wrong. There was no way to understand it.” “We had no strategy to overcome this...We just finished what we had started, and it turned out well.”	Effectuation	Means-driven
13	STE	“We saw that this model did not succeed...We realized this from the convergence rates. Either we would change the business model or our company would go bankrupt.” “You can try to prepare backup plans but since the scale is small, you may not make it; it is unlikely. We didn't have big losses, though.”	Effectuation	Leveraging contingencies
14	STE	“We didn't expect that the team could suddenly dissolve!” “When the team was reduced to two people, it created depression, unrest, loss of many people from the friend circle. It also meant a loss in capacity; it means a shrinkage of projects.” “Since we came here without knowing much, at first we had no plans. What would we do if we failed? We would quit. We are still students. Not a big deal.”	Effectuation	Affordable loss
15	JQ	“It was a critical danger for us and we took our precautions for that. We planned a sustainable business strategy...Our solutions were based on practice. We shape our moves according to the lessons we had after testing our games with people/market. There is no such thing as foresight.” “Trial and error is key. One should define trial very clearly here. Trial is not asking! Asking people about their ideas and letting people test your product are two different things.”	Both	Affordable loss Avoiding contingencies
16	STE	“The story that I chose was very big, beyond my capabilities...Surely I had some suspicions but I never thought that the game will grow to this level...Then I turned it into a single player game. I've returned to where I started.”	Effectuation	Means-driven
17	PI	“At the panic moment, there was zero money in company's account.” “If we didn't take the Techno-entrepreneurship grant I think we would dissolve...Suddenly, we had money in our pockets, even if it was a small amount, we got carried away and moved on with this.”	Causation	Avoiding contingencies Goal-driven

Table 22 continued

“There are still questions in our minds but...at least we now know how to earn money a little more...Our important vision was this: We’ve never accepted projects other than games.”			
18	PI	“Until the early days of 2016, we failed in almost everything we did commercially.” “For the jobs we took in 2013-2014, we were more selective. However, in the bad days of 2015, the times when our capital was almost zero...the only thing was feasibility! Can this be done? Yes. Then, do it even if it’s at cost! Because you have one goal; to keep the team alive.” “I think being able to make momentary changes in decisions and not insisting on the first idea also helped us to succeed.”	Effectuation Affordable loss Means-driven
19	STE	“At that point, we paused and said, “What are we doing? What are our strengths? What are the opportunities in the market? What can we do?”” “As a result of the tests and market analysis, we saw that IO genre games...had appeared as a market we could easily step into and survive.”	Causation Goal-driven Predictive view on future
20	JQ	“You need to move on, even by yourself... Things that you have built on others may collapse. You need to be self-sufficient.”	Causation Avoiding contingencies
21	JQ	“We tried to be smart... We kept our focus... The biggest danger in a moment of crisis is the tendency to distort your focus. Because when you question what you are doing, you want to do something else. Moving after what you believe with all your energy is very important. It brings the solution. It manifests itself!”	Causation Goal-driven
22	EE	“Let’s say you are trying to solve a problem; if you solve the problem in a non-assertive way you create a technological debt in a way because eventually that non-assertive part will cause other parts to fail. If you don’t take your measures today, solving that problem will be more expensive next year.”	Causation Goal-driven Predictive view on future

5.7. Phase 7: Reconfiguration of Organizational Structure

The video game industry is open to doing business without establishing a company. The mobile and online PC game platforms, in particular, provide opportunities for artist-led distribution. In this case, the game can be published under the name of the individual developer or game developer team. Reconfiguration of organizational structure phase covers the decision to establish a legal entity and opening a new branch or new office. In this sample, six of the participants had not experienced any organizational change at the time of the interviews; therefore, they were not included in this phase.

Table 23 illustrates that the dominant decision-making logic in Phase 7 was causation. Thirteen participants used a goal-driven approach when they decided to reorganize their organizational structure, while three participants used effectuation. The decision to go for a change in the organization structure was affected by several environmental factors. Five of the participants had been through a reconfiguration process due to their grant obligations or investor relationships, as it was the case for Participant 13. Another triggering factor was the encouragement of the ATOM administration (for those who were based there) and METU Technopark. The influence of ATOM coordinators also showed the entrepreneurs' openness to the views of outsiders and their welcoming approach to the ideas; situations as in building partnerships principle of effectuation approach. The opportunities offered by the technopark administration were also valued by participants such as Participants 21 and 22.

For those who determined the timing of organizational change themselves, their decisions were influenced by their favorable positions in terms of their experience, skills, and network, as well as by their apparent market success (high sales records) and/or visibility in their industrial communities (winning prizes). This positive feedback increased the participants' confidence and encouraged them to trust in their business model and take the next step.

Table 23

The Use of Effectuation and Causation in the (Re)configuration of the Organizational Structure Phase (Phase 7)

ID	Profile	Excerpts	Decision-making type	Decision-making principle
1	JQ	"In 2013 the acceptance of Techno-Entrepreneurship application....After receiving it, there was some paperwork. And the company was established at the end of March."	Causation	Goal-driven
2	PI	"During our time in ATOM; which is more than one year; we started to take jobs. Just around that time, we thought that our business had become self-sufficient. ...it was just the right time, we said "Let's establish our company.""	Causation	Goal-driven
3	JQ	"At first, I considered establishing a company as a burden....The company was established after all of the games were published."	Causation	Goal-driven
4	STE	"Without ATOM, establishing a company would have been too intimidating for us." "Our first game was published right after we established the company." "After we took the grant from TUBITAK, they gave us six months to establish the company."	Causation	Goal-driven
5	PI	"I've always wanted to establish my own company; it goes back to my childhood" (Participant's answer to "Would you still establish your company if you had not been in a place like ATOM?"): "Most probably it wouldn't happen."	Effectuation	Building partnerships
8	STE	"We established the company with the Technological Entrepreneurship Capital Support." "Techno-Entrepreneurship support had just been launched back then. The first time, I was rejected. One year later, on my second application, I got it."	Causation	Goal-driven
9	JQ	"Our intention was to establish our company after the release of our games... We avoided turning into a company but having the grant compelled us."	Causation	Goal-driven
10	EE	"I knew how to earn money from games before establishing the company...I wanted to have an independent working space and bring together our business under the roof of a firm."	Causation	Goal-driven

Table 23 continued

11	JQ	“Our official name is different. This is the brand we use for games only. We have another brand for e-learning. But we have kept ourselves away from that side lately.”	Causation	Goal-driven
13	STE	“In June, it became clear that we were going to make the investment...In order for them to make an investment in us, we needed to transform ourselves into a company.”	Causation	Goal-driven
15	JQ	“It happened after one of the published games had become globally successfully and become a hit...Before graduating from ATOM, they (we) moved to the incubation center here.”	Causation	Goal-driven
17	PI	“Actually, they pushed us a little bit like: “Establish your company, establish your company” ...I mean, it was a very quick process. That’s why we had no office when we established the company...Because it was a success criterion for ATOM back then, thank God they changed that criteria now.”	Effectuation	Building partnerships
18	PI	“Once you apply for TUBITAK1512, the establishment phase is enforced. Normally, if I had come to ATOM directly, I wouldn’t have thought of establishing my company right away.”	Causation	Goal-driven
19	STE	“We did not have an agenda for establishing a company...Our intention changed and was shaped during the ATOM process.”	Effectuation	Means-driven
21	JQ	“We started this company to be able to make games only... We established the company in another technopark back in 2005. In 2012, METU Technopark invited us here. Their vision was to gather game developers in Turkey at the same place.”	Causation	Goal-driven
22	EE	“Particularly for this business, we came to Ankara from Istanbul...Here we saw that there was a welcoming atmosphere for game companies. We thought that we could capture a better synergy here.”	Causation	Goal-driven

5.8. Phase 8: Team Reconfiguration

It was observed that the scale of the team changed during the lifespan of participants' businesses. It was found that such decisions were shaped by several triggering factors.

- Increase in financial resources
- Increase in project size
- Organic growth (engaging with the community in ATOM or game development events)
- Changes in vision

Team reduction was triggered by:

- Conflicts (personal conflicts, conflicts due to changes in the project, mismatch of expectations)
- Financial crises
- Productivity decrease
- Changes in vision

The dominant decision-making logic in team reconfiguration phase was causation. Table 24 shows that twelve participants took their team reconfiguration decisions with a causation approach. Ten participants used effectuation, and two of the participants' decisions were a mixture of effectuation and causation.

Phase 8 showed that team harmony had particular importance for carrying out businesses in the video game industry. This importance showed itself at various points. First, since new members' involvement carries risk in terms of disrupting team harmony, it caused entrepreneurs to be more selective. Since it is hard to assess the appropriateness of the newcomers to the team, participants used mutual communication, cognitive proximity, and trust as the basis for their decisions.

The participants had clear visions about what kinds of skills and qualifications they needed when they wanted to enlarge their teams, and they met their needs from the people they had a relationship in past or from their local networks. Three of the participants (10, 21, and 22) mentioned that they had a systematized human resources process. Among these participants, two were experienced entrepreneurs and one belonged to job quitter profile. Participant 10 gave great importance to team harmony. In his company, they developed a “safe to fail” zone for a potentially wrong decision about hiring to minimize the potential harm to the rest of the team.

The importance of team harmony was highlighted by participants who carried out entrepreneurship and independent game development simultaneously; especially for the participants in the student entrepreneur profile in our sample. Participants’ limited resources in terms of finance, knowledge, and networks, combined with the experiential nature of game development, brought uncertainties to decisions of team reconfiguration. Besides, entrepreneurs cannot provide job descriptions and attain responsibilities of team members. Furthermore, during the interviews it was mentioned by several participants that scheduling tasks was problematic and participants spent more time than they anticipated for several tasks.

Another reason for the importance of team harmony stemmed from the value of motivation for the participants. Motivation was an important asset such as time, money, and networks for the participants of this study. A strong team and a supporting ecosystem relationship provided resilience during hard times. In fact, some participants gave priority to the team more than their companies.

Participant 10 stated that “*The lack of motivation, unhappiness, and the unwillingness of even one person reflects on the whole team*”. Similarly, Participant 21 stated that, “*Even one person can poison ten people. The team is very important. If that person has good energy it gives good energy to everyone; if he/she has bad energy it ruins everybody’s energy.*”

Participant 5 stated that, *“If you are working with someone who thinks that the end of the world is near, it affects your psychology as well.”* He also stated that *“I think if a person wants to be successful at game development, he/she should really enjoy himself/herself while doing it.”*

The primary triggering factor for team reconfiguration was the change in financial resources. Participants enlarged their teams when they had more resources and shrunk the team when they were in a financial crisis. Participants 2, 3, and 4 noted that they hired freelancers occasionally for graphics and coding. Participant 14 stated that although it looks like they have four people, there were two more people who supported them part-time.

In the case of Participant 11, his team expansion decision was goal driven to fulfill the workforce requirements of the project. His approach towards how he selected new partners was similar to partnership building. He stated that, *“We continued to work with friends we hired for the project for a while longer because we thought that there was a potential and transforming that potential into value was our strategy”*.

Table 24

The Use of Effectuation and Causation Approaches in the Team Reconfiguration Phase (Phase 8)

ID	Profile	Excerpts	Decision-making type	Decision-making principle
1	JQ	"My current partner is a friend from university. He is in my high school friends' group. He was in the Business Administration department. That's how we became friends. It started as a social relationship."	Effectuation	Means-driven
2	PI	"We had a big game project idea; we were looking for coders."	Causation	Goal-driven
3	JQ	"This time a friend from outside is working for coding."	Causation	Goal-driven
4	STE	"There was a lasting conflict among the partners...Once the grant was announced things changed. Everybody's expectations towards each other increased...We couldn't solve it and two of us decided to move on."	Causation	Avoiding contingencies
5	PI	"That person was someone I knew from the previous company I worked with." "I made a few games with my friend."	Effectuation	Means-driven
6	PI	"I made a personal presentation, then we became teammates with friends here."	Effectuation	Building partnerships
7	STE	"I had another friend; we were three at the start. Now we are going on as two. He (former partner) has pulled out; he didn't want to be on this side."	Effectuation	Building partnerships
8	STE	"It (the team) waxes and wanes so much. You grow with the project; you wane with the project." "At the end of the first year, we were 11. We had several issues. Partners left. Then I scaled down to four-five. All of the employees changed."	Causation	Competitive selection of partnerships
9	JQ	"At first we were a team of five...It was like a spacecraft dropping its parts...It happened due to the over-reflection of personal problems to work. There was a kind of emotional instability."	Effectuation	Means-driven
10	EE	"When I wanted to enter the game industry, he wanted to join, too. Later we saw that this was not for him, so he entered the construction sector." "I care very much about team harmony. That's why a new person's discord with the team is a great risk, I think."	Causation	Competitive selection of partnerships

Table 24 continued

11	JQ	“Since that project was big, we needed to grow.” “When the project ended, we chose not to do what most of the companies do: saying goodbye to people.”	Both	Goal-driven Building partnerships
12	STE	“Ours happened a little bit more organically. Rather than thinking, ‘Let’s have one more developer, one more artist’, we decided to move on as three of us after we completed the project there that day. It was more project-based.” “There was not an evaluation as such. He and I knew each other since we had been together for years.”	Effectuation	Means-driven Building partnerships
13	STE	“First, we didn’t have big resources. We had to pay less than other companies to part-timers and full-timers. Also, because we were trying to find the right person; if you want good ones who can work with a small budget for us, there are only a few people you can talk to.”	Causation	Competitive selection of stakeholders
14	STE	“Right at the moment when we offered to try a few projects for mobile, two of our programmers left immediately. They said they didn’t come here for this.”	Effectuation	Building partnerships
15	JQ	“We completely clarified what we needed, what kind of a team we needed in order to create a competitive atmosphere around January. We structured it. We discharged one of our friends. We hired a new friend accordingly.”	Causation	Competitive selection of partnerships
16	STE	“(The game) being completely produced by myself was important for me.” “I wouldn’t like other people’s work somehow!”	Causation	Avoiding contingencies
17	PI	“Since we are in the kitchen of this business... We know exactly what we need; we approached this completely from the technical standpoint.”	Causation	Competitive selection of partnerships
18	PI	“Now there are two more friends and also two more who are working with us from the outside.” Participant 18 mentioned that he hired one of his interns. “We had a particular job at that time... It was a long project. This friend had done his internship with us two years ago.”	Effectuation	Means-driven
19	STE	“We are at the very time of expanding the team.” “As a company, the most important thing for us is communication. First, we look at whether he/she will fit with the company’s chemistry. While hiring the 8 th person, it is very important	Both	Goal-driven Building partnerships

Table 24 continued

		for him/her to be able to be friends with the remaining seven people. We work in a very happy atmosphere. But this is only possible with everyone's harmony with each other."		
20	JQ	"There is a general idea that don't deal with everything, build expertise in one thing. I think this is absolute nonsense! Because in the end you are trying to do everything on your own somehow. What we are doing is entrepreneurship and independent game development at the same time! In the end, you need to cover the gaps. At least a few disciplines." "You need to make yourself to survive alone under this century's conditions."	Causation	Avoiding contingencies
21	JQ	"There was a lethargic atmosphere. Out of the success the firm had. Then suddenly we scaled down the team to eight from 30!" "We decided not to grow out of control. Our vision is to produce boutique games with a boutique team."	Causation	Avoiding contingencies
22	EE	"We are lucky on that part since we are known in Turkey; we don't need to put in a great effort for it. We are not actively looking for someone. It's enough to evaluate the CVs we get."	Causation	Competitive selection of partnerships

5.9. Summary of Findings

This chapter examined decision-making logics used by four different profiles of entrepreneurs during eight major phases of their entrepreneurial journey based on the coding framework provided in the previous chapter. 22 participants and eight major phases, creating 176 decision points. Eight cases identified with NA represent the situation where there was no change in the process and/or no decisions were taken by the entrepreneurs for the related phase. I observed that effectuation was coded 97 times, causation was coded 63 times, and a mixture of effectuation and causation was coded 8 times. Table 25 illustrates the decision-making approaches used by participants in each phase. Table 26 summarizes the triggering factors for each phase.

Table 25

Summary Table for the Use of Effectuation and Causation in All Phases

ID	Profile	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
1	JQ	E	E	E	E	E	E	C	E
2	PI	E	E	E	E	E	E	C	C
3	JQ	E	E	E	B	E	E	C	C
4	STE	E	E	E	E	E	E	C	C
5	PI	E	E	E	E	E	E	E	E
6	PI	E	E	E	NA	E	E	NA	E
7	STE	E	E	E	E	E	E	NA	E
8	STE	E	C	E	C	C	C	C	C
9	JQ	C	E	C	E	C	E	C	E
10	EE	C	E	C	C	C	C	C	C
11	JQ	E	E	E	E	E	C	C	B
12	STE	E	E	E	E	E	E	NA	E
13	STE	C	E	B	E	C	E	C	C

Table 25 continued

14	STE	E	E	E	C	E	E	NA	E
15	JQ	E	E	E	C	C	B	C	C
16	STE	E	C	E	NA	C	E	NA	C
17	PI	C	E	C	C	C	C	E	C
18	PI	E	E	E	C	C	E	C	E
19	STE	E	E	C	C	B	C	E	B
20	JQ	C	E	E	E	C	C	NA	C
21	JQ	C	E	B	E	E	C	C	C
22	EE	E	E	B	C	C	C	C	C

E: Effectuation, C: Causation, B: Both, NA: Not available

Table 26

Triggering Factors in All Phases

Phase	Triggering Factors	Number of times each approach was observed (E=Effectuation, C=Causation, B=Both)
Initial decision	Success and recognition events	
	Job dissatisfaction	
	Coincidences	E: 16
	Support funds	C: 6
	Education	B: 0
	Connection with the game community	
	Infrastructural needs	

Team formation	Former acquaintances	
	A similar passion for games	
	Former game development experiences together	E: 20 C: 2
	Mutual necessities	B: 0
	Strong attachment to a personal vision	
Business model & product development	Resource and capability limitations as a team	E: 15 C: 4
	Technical impossibilities	B: 3
	Requirements of the grant programs	
Marketing	Resource constraints	E: 11
	Game genre	C: 8
	Technological tools	B: 1
	Platform-induced opportunities	
Networking	Local ecosystem	
	Experience	E: 11
	Specific needs	C: 10
	Networking skills	B: 1
	Time constraints	
Crisis	Uncertainty	E: 13
	Financial bottlenecks	C: 8
	Team related problems	B: 1
	Business model failures	
Reconfiguration in organizational structure	Contractual obligations	
	Ecosystem guidance	C: 13
	Approved success	E: 3
	Having sufficient resources	B: 0
	Sustainable business model	

Table 26 continued

Team reconfiguration	Change in financial resources	
	Project size requirements	C:12
	Engaging in the community	E:8
	Changes in vision	B:2
	Conflicts	

In the next chapter, the findings will be discussed and the relevance of findings with the effectuation theory and with other theories will be provided.

CHAPTER 6

DISCUSSION

This chapter is composed of five parts. Section 6.1 reports on the particular challenges encountered during the coding process of data. Section 6.2 presents the factors derived from the data analysis regarding how entrepreneurs frame success in the video game industry. Section 6.3 proposes the grounded theory model developed for entrepreneurial decision-making in the video industry by considering the participants' tendency towards effectuation and causation approaches. Section 6.4 discusses the linkages of the proposed grounded theory model with relevant literature. Finally, Section 6.5 summarizes the chapter.

6.1. Evolution and Embeddedness of Decision-Making Approaches

The relatively under-developed level of effectuation theory provided room for the employment of the grounded theory method but it also challenged me at the analysis stage. In various cases, distinguishing between effectuation and causation was tough. During the interviews, participants mentioned their decision-making logic and their actions simultaneously; which may seem as evidence towards the existence of a mixed approach of decision-making. In Phase 2 (see Section 5.2.) Participant 7 mentioned that he “needed someone” for his team. In this case, one might reason that the participant was in a search process for partners, and may identify the participant's decision as causation. However, when the absence of potential partners, competitive evaluation of partners, and negotiation process for partnership conditions are examined in detail, it can be seen that the participant's decision more likely indicated an effectual

approach. That is to say, during the analysis of decisions, sometimes the participants' statements alone were not sufficient to decipher the type of decision-making approach; the context of the decisions and the overall history of participants' entrepreneurial journey had to be considered.

In addition to the embeddedness of the decision-making mindset and actions of entrepreneurs, I observed that the decision-making approach of participants evolved as they progressed through their entrepreneurial journey. In these cases, I considered the most recent decision-making approach of the participant when I needed to classify the participants' decisions as effectuation or causation. Additionally, I also considered the historical timeline of the company and the participants' general approach to decision-making. For instance, in the Business Model and Product Development Phase (see Section 5.3.), Participant 7 stated that they focused on the projects they planned to complete at the first one and a half year after establishing their company. However, after completing the projects, they "*changed their business model by making various trials*". In this case, their decision implied acting based on their means; therefore, this decision was coded as effectuation. A similar example can be found in the Network Establishment and Reconfiguration Phase (see Section 5.5.). For instance, Participant 18 stated that, "*Before 2015, where there was a conference, I was there...Now we are working on deepening the existing relationships...I have no effort to meet new people.*" Similarly, Participant 17 shared that he "*kept his network limited to people in the game industry only.*" In these cases, the participants mentioned their networking approaches in the past while addressing a change in their more recent efforts towards being more selective and goal-oriented. I interpreted such changes as evolution towards causation and accordingly, I coded their decisions as causation. In other words, for the decisions which involved a change about a particular phase, the identification of decisions as causation or effectuation was not clear-cut so I considered the most recent approach of the participants.

In the Crisis Phase (see Section 5.6.), it was hard to identify one key decision since the crisis can have multiple and sequential reasons and its impact spread to other phases. For these cases, I listed the relevant key decisions and tried to detect the existence of

a convergence towards a particular decision-making approach. Besides, I observed that participants changed their decision-making approach based on the failure of their previous decision-making approaches. Especially after the Crisis Phase, participants incorporated any lessons learned into their future decisions and strategies. For instance, Participant 11 mentioned that now they are “*approaching the business opportunities with more caution*” after experiencing previous failures. The case of Participant 11 is a good example of a transition from effectuation to causation. However, the opposite transition was also evident. For instance, Participant 18 said that he had “*tried to act very goal-oriented in the beginning;*” however, due to the frequent unexpected events he experienced and difficulties regarding making task division between team members in a small size firm, he stated that he “*gave- up on planning*”. It seems that one should be cautious regarding any misinterpretation of the decision-making process as a static one.

Despite the effort for the identification of the participants’ decisions in terms of their similarities to effectuation and causation approaches, there were eight cases where effectuation and causation were used complementarily. The examples can be found in the Business Model and Product Development (Phase 3), Networking (Phase 5), Crisis (Phase 6), and Team Reconfiguration (Phase 8) phases.

6.2. Market Experimentation as A Tool for Coping with Uncertainty

The participants of this study agree on the absence of a precise success formula in the video game industry. The existing studies support this view by arguing that dominant business paradigms do not develop in cultural and creative industries due to “high dynamism” and “long periods of ambiguity” (Lampel et al., 2000, p. 268). Nonetheless, a success model in the video game industry can be proposed with the analysis of the qualitative data via MaxQda based on the experiences, observations, and opinions of the participants of this study. I reasoned that how entrepreneurs frame success is important for us since it may improve the perception regarding the justification of the entrepreneurs’ decisions.

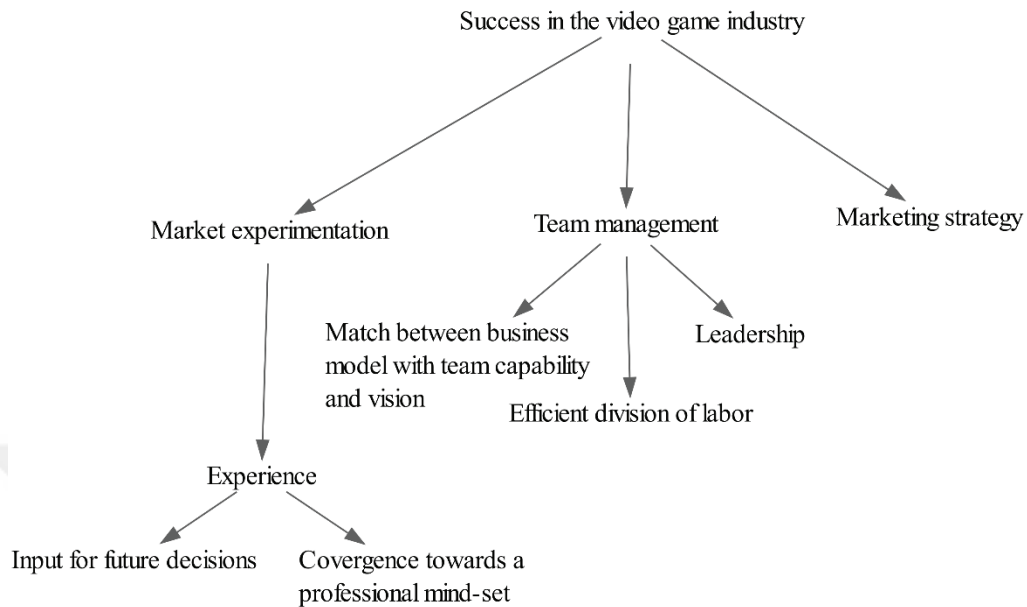


Figure 9. Success model for entrepreneurs in the video game industry.

The success model derived from this study is provided in Figure 9, which emphasizes the role of many trials on the market, marketing strategy, and team management as key ingredients for success.

6.2.1. Market experimentation

Market experimentation constitutes one of the building blocks of the entrepreneurial journey in the video game industry. The dynamics of the digital game industry puts experimentation at the core of the strategic decisions of entrepreneurs. The current conduct of business in the digital game industry does not favor an environment for prediction due to several uncertainties. Rather, the industry conditions impose a “*act first, see later*” approach as a rule of thumb. Therefore, most of the participants change their initial business model, experiment with different games, genres, or platforms. The statement of Participant 3 can be a good summary of this topic:

The game sector is the place where all the prejudices are turned on their head! Everybody has their ideas, I do as well...about what kind of things will certainly succeed. This job is not like this! This job is completely based on experience. You can

only prove it after you see it. This is what I defend. That's why you need to continuously produce. While you are producing, you need to make observations, decide on whether the game has a future or not... You need to really concentrate on that!

6.2.2. Marketing strategy

Technological advancements and the digitalization of contents gave birth to online distribution platforms such as mobile markets (IOS and Google Play on mobile; Steam on PC). These advancements enable content producing entrepreneurs to reach consumers more easily, with no cost, and facilitate “artist-led distribution” (Broekhuizen, Lampel and Rietveld, 2013). Nevertheless, there are speculations whether or not the opportunities for direct distribution can be a “viable strategy”, since the publishers’ control power over the value chain in the video game industry has not completely vanished (Broekhuizen et al., 2013, p. 955).

The findings in Phase 4 (Marketing) suggest that although particular digital publishing platforms can be preferred in terms of the marketing opportunities they offer, the participants of this study mostly preferred to experiment with multiple marketing strategies, such as working with a publisher or collaborative publishing. Moreover, the findings revealed that publisher deals can be hard to establish, sustaining a functioning communication can be difficult, and from the entrepreneurs’ perspective publisher deals may result in losing the creative control of their games. Besides, it was found that having contacts from digital game platforms and having well-established relationships from local or global game media impacted participants’ marketing decisions. Therefore, I argue that the findings regarding the publishing strategies conform to the existing literature on specialized complementary assets (hence, SCA) in the video game industry. Broekhuizen et al. (2013) defined four critical SCAs in the video game industry, which are “large portfolio of content, marketing skills, and assets, having relationships with gatekeepers and the firm’s reputation”. A strong marketing strategy requires entrepreneurs’ consideration of costs and gains of artist-led distributions and alliances with publishers (Broekhuizen et al., 2013). Alliances could generate a positive signal about the firms’ trustworthiness and product quality, which

in turn may result in higher revenues from games, higher units of sales, and making more games in a year. However, forming such alliances exposes entrepreneurs to varying degrees of risks. Understanding the nuances in the contracts requires relevant experience which entrepreneurs may lack (Broekhuizen et al., 2013, p. 956). Besides, entrepreneurs may be subjected to a cutting back of commitments when publishers find a substitute or similar company to work with. Even after the agreement, opportunistic behaviors of publishers can prevail about issues which are hard to explicate in contracts, or over critical specialized assets. For long-term agreements, alliances with publishers may generate a dependency (Broekhuizen et al., 2013).

6.2.3. Team management

In this study, the majority of the participants value the team more than the commercial success of their ventures or the venture itself. The survival of the team was given great emphasis in the crisis periods. In addition to this, the critical importance of team harmony and a functioning communication within team members led entrepreneurs to handle such issues with greater care and contemplation; so that team reconfiguration decisions are mostly taken with a goal-driven mindset.

6.3. How Does “Market Experimentation as A Tool for Reducing Uncertainty” Fit with Sarasvathy’s Effectuation Theory?

The determinants of success, changes in decision-making approaches, and triggering factors in each phase constructed the grounded theory model on entrepreneurial decision-making in the video game industry in this study. This led me to propose a model which claims that *“in the video game industry, entrepreneurs use their products as exploration tools in order to navigate the market until they achieve a sustainable business model”*. To achieve this, many trials in the market and, therefore, flexibility in decisions are necessary. Thus, effectuation emerges as the dominant decision-making approach.

When I looked at whether there is a difference among different profiles of entrepreneurs, I found that experienced entrepreneurs who are more resource-rich in terms of knowledge, experience, networks, and finance used effectuation less. Table 27 shows that participants grouped under the experienced entrepreneurs' category started with an effectuation approach in the early phases of their entrepreneurial journey; however, in the following phases, goal-driven decisions dominated their decision-making approach. The decision-making approaches of four profiles of entrepreneurs are summarized in Appendix F of this dissertation.

Table 27

Decision-Making Approaches of Experienced Entrepreneurs Throughout Their Entrepreneurial Journeys

Experienced entrepreneurs								
10	C	E	C	C	C	C	C	C
22	E	E	B	C	C	C	C	C

C: Causation, E: Effectuation, B: Both (Effectuation and Causation)

This study argues that decision-making is a dynamic process between environmental conditions and entrepreneurial abilities. From this point on, I integrated environmental conditions as triggering factors and identified them in each phase in Chapter 5 (see Table 26). As a next step in theorization, I differentiated triggering factors as **expansive factors** and **limiting factors**. Expansive factors are placed in the entrepreneurial environment which increases the flexibility of entrepreneurs in terms of opportunities, control and prediction. For instance; marketing opportunities provided by particular game platforms (such as Steam for PC games) enable entrepreneurs to reach potential players more easily than other platforms (such as UPlay), and therefore increase the maneuver of actions. Limiting factors decrease the

range of flexibility of the entrepreneurs' decisions. Examples of expansive and limiting factors derived from this study are provided in Table 28.

Table 28

Expansive and Limiting Factors for Entrepreneurial Decision-Making in The Video Game Industry

Expansive factors	Limiting factors
Approved success	Business model failures
Coincidences	Conflicts
Connection with game community	Contractual obligations
Ecosystem guidance	Financial bottlenecks
Education	Infrastructural needs
Experience	Time constraints
Financial improvements	Unexpected events
Acquaintances	
Platform-induced opportunities	
Similar passion for games	
Sustainable business model	
Support funds	
Technological tools	

I argue that within the scope of this study, entrepreneurs relied on effectuation as the main decision-making approach throughout the phases of their entrepreneurial journey for different purposes and in different contexts. Following this, I built on effectuation theory by introducing two new concepts. I differentiated the effectuation approaches of entrepreneurs in terms of their resource compositions. Following this, I conceptualized effectuation strategies employed by resource-lacking entrepreneurs for

capacity building and survival in the video game industry as **adaptive effectuation**. On the other hand, I conceptualized the effectuation approach used by resource-rich entrepreneurs as **explorative effectuation**. In adaptive effectuation, entrepreneurs make decisions generally in reactive mode, while pro-active decision-making is possible in explorative effectuation. A key distinction between adaptive effectuation and explorative effectuation is that in adaptive effectuation, entrepreneurs try to develop their innovative capabilities while they struggle with several limiting factors at the same time. On the other hand, in the explorative effectuation entrepreneurs try to overcome the limiting factors only. A visual representation of my model is provided in Figure 10.

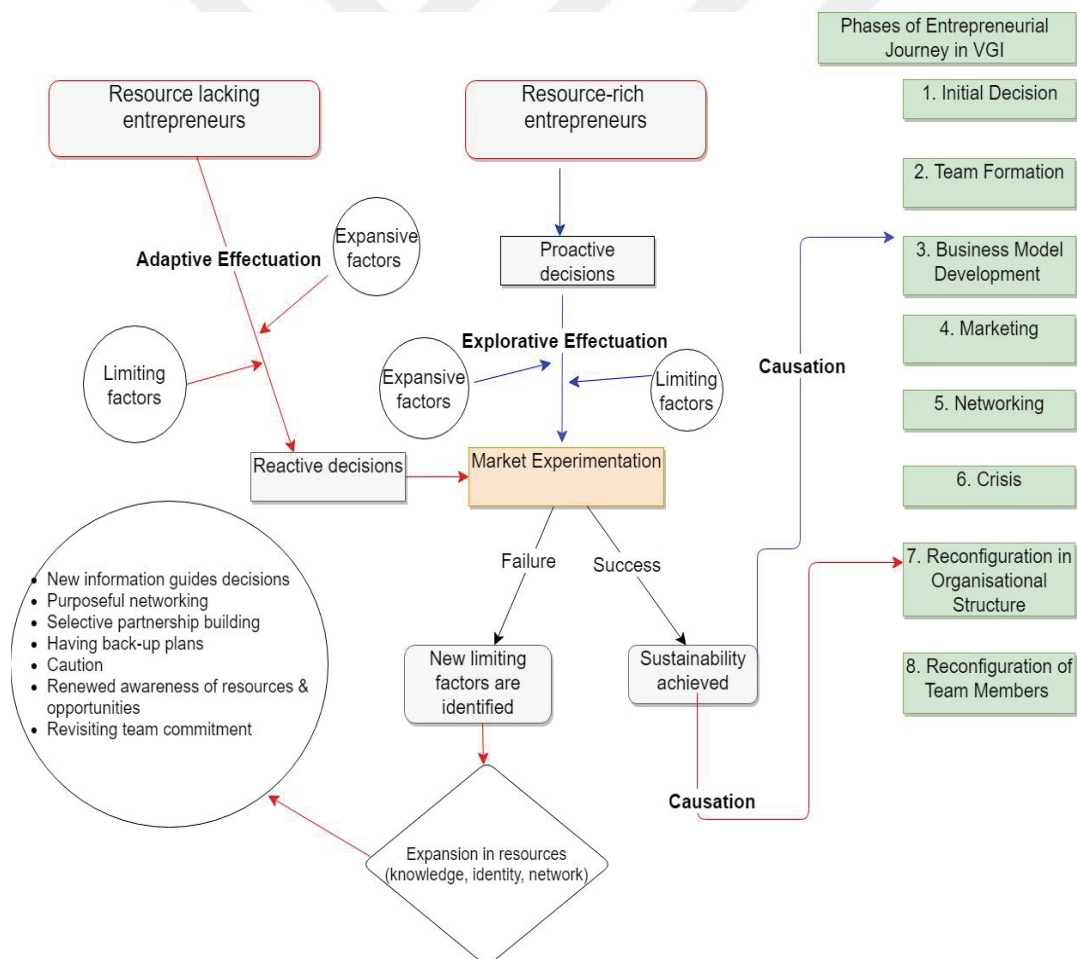


Figure 10. Dynamic process of entrepreneurial decision-making.

Figure 10 shows that entrepreneurs with more resources in terms of experience, finances, knowledge, network, reputation, and past success can take goal-driven decisions at the earlier phases of entrepreneurial journey than less resourceful entrepreneurs. To put it clearly, while resource-rich entrepreneurs can take goal-driven decisions starting from the business development phase and onwards, resource-lacking entrepreneurs can start to use goal-driven decisions starting from the reconfiguration of organizational structure phase and onwards.

In our model, the transition from means-driven decision-making to goal-driven decision-making is mediated by crisis periods in adaptive effectuation. On the other hand, in explorative effectuation, entrepreneurs can switch into a goal-driven approach earlier due to the resources they have. I support this proposition with the fact that in the video game industry a sufficient level of flexibility or professionalism can be necessary to detach from the game/business idea which did not convert into profits. Therefore, it is not surprising to see that reactive decisions constitute the majority of the decisions. However, developing this professional mindset takes time and often developed after several crisis points. This argument can be supported with the findings of this study which suggests that causation type of decision-making was increased after crisis phases. Moreover, it is observed that experienced entrepreneurs encounter fewer triggering events, compared with entrepreneurs in other groups. This finding can be interpreted as those who experience more triggering events as those who are in a “far-from-equilibrium conditions” or “open to its environment”, since in unstable states the “system becomes susceptible to tiny signals; which would not have much impact with respect to stable state conditions” (MacLean and MacIntosh, 2003, p. 150). Following this argument, one can say that experienced entrepreneurs are less susceptible to environmental signals.

Alternatively, the difference between the current business models or goals of the participants with their initial business models and goals points to the unpredictability in the industry. The overall uncertainty and unpredictability of a successful business model in the video game industry is the common problem of both entrepreneurs who have rich resources and resource-lacking entrepreneurs.

Our model also shows that entrepreneurs can increase their resources throughout their entrepreneurial journey; and their decision-making approach can converge towards causation even though eliminating the uncertainties may not be possible. In this study, I did not attempt to measure the uncertainty levels in the entrepreneurial journeys of the participants. Rather, the results show that uncertainty is a phenomenon each person experiences differently. Casson (2003, p. 20) defines an entrepreneur as “*someone who specializes in taking judgmental decisions about the coordination of scarce resources*”. Therefore, I argue that goal-driven decision-making can become possible for experienced entrepreneurs due to their relatively high abilities of resource coordination. Resourceful entrepreneurs are in an advantageous position although limiting factors can still be at work. Entrepreneurs who use adaptive effectuation can experience the impact of limiting factors more during their experimentations and this may put them into longer periods of learning by doing.

6.4. Discussion of Key Findings and Relevance for Existing Literature

The findings of this study are mixed with respect to prior research on effectuation and have relevance for different streams of literature. In this study I found that at the initial decision phase, entrepreneurs heavily used effectual tactics while starting their businesses. The findings confirm the previous studies on the use of effectuation in the venture creation process, especially in the idea phase (Reymen et al., 2015). A lack of planning behavior in the initial phase can be potentially explained by the factors that increase information costs, such as information processing requirements, contingencies, and the emergence of new information (Casson, 2003). So, entrepreneurs plan their tasks and schedules, but once they see that there are many unexpected events distorting their plans, they reduce their efforts for planning their actions. Rather, they prefer to start with vaguely defined goals, passion-induced visions, and instincts, thus saving time and mental energy beforehand. Yet this should not be viewed as a kind of aversion in the participants towards planning. In other words, the desire to have control over the whole process did not completely vanish for the entrepreneurs. This finding is also in line with the study of Sirén et al. (in press), who underline the positive relationship between effectuation and the flexible planning

of tasks, which favors planning as tasks emerge rather than keeping up with a pre-determined time schedule. This finding also supports the view on the uncertain nature of entrepreneurial opportunities; that is, opportunities cannot be known ex-ante (Casson, 2003; Knight, 1921). In other words, the participants of this study can only know if their strategy was right after they “effectuate” their ideas.

In the scope of this study, novice entrepreneurs composed the majority of the sample and it was found that effectuation was used more than causation. This tells us that effectuation was used by novice entrepreneurs more heavily than causation. In other words, the findings of this study do not support the argument in the existing literature regarding expert entrepreneurs using the effectuation logic in their decisions (Sarasvathy, 2001; Sarasvathy 2008; Read et al., 2009a; Dew et al., 2009b; Dew et al., 2011). The finding which suggests that experienced entrepreneurs used effectuation less contradicts earlier studies suggesting that effectuation is used more heavily by expert entrepreneurs (Dew et al., 2008; Read et al., 2009). To explain this contradiction, the function of expansive and limiting factors were integrated into the grounded theory model. Since experienced entrepreneurs constitute the minor part of our sample, our findings should be replicated with a sample with more equal representation of different profiles of entrepreneurs.

The concept of adaptive effectuation carries similarities with the literature on dynamic managerial capabilities. A dynamic managerial capability is defined as “*the capacity of managers to purposefully create, extend, or modify the resource base of an organization*” (Adner & Helfat, 2003, p. 1012). According to this approach, dynamic capabilities can be also used to form capabilities. Zahra, Sapienza, and Davidsson (2006, p. 938) state that planning is a “luxury”; so that “young firms sink and swim with what they have; they tend to learn by doing” as described in effectuation theory. The literature on dynamic managerial capabilities draw attention to the relation between firm performance and asset orchestration (resource employment and deployment) capabilities of firms (Sirmon & Hitt, 2009). Although effectuation theory has similarities with dynamic managerial capabilities approach in terms of its focus on

employment of resources; it does not provide sufficient guidance on the resource deployment capabilities of entrepreneurs.

This study showed that despite competing in the same market, there was cooperation between the participants. Cooperation was dominant in forms of publishing each other's games, collective decision-making, open-sharing of information, and trust in entrepreneurs' relationships. The solidarity between entrepreneurs can be explained by the rapid technological change in the video game industry. Therefore, the findings of this study can be extended to the literature on coopetition (Bengtsson & Kock, 2000; Walley, 2007; Morris, Koçak & Özer, 2007; Dagnino & Rocco, 2009; Ritala & Hurmelinna-Laukkanen, 2009; Bengtsson & Johansson, 2014).

The role of passion has been investigated in entrepreneurship research comprehensively (Vallerand et al., 2003; Cardon et al., 2005; Cardon et al., 2009; Breugst et al., 2012; Chen et al., 2009; Murnieks et al., 2014) and it has been argued that passions play an important role in entrepreneurship performance (Schulte-Holthaus, 2019). However, passion has a different role for entrepreneurs in the cultural and creative industries with respect to other industries. Passion is conceptualized as a facilitator of inspiration which fuels the creativity for entrepreneurs in the cultural and creative industries (Bhansing et al., 2018). Bhansing et al. (2018) explain this difference by the fact that, entrepreneurs in CCI do not try to find solutions to problems or needs of the customers.

Our findings have relevance for studies on entrepreneurial decision-making and geographical proximity. A recent study indicates the positive relationship between motivations of entrepreneurs in the cultural and creative industries and their peers' passion with whom they share the same space and suggests that "passion exists as a type of local buzz" (Bhansing et al., 2018, p. 8). A similar case was observed in this study as well. The participants of this study attached a considerable importance to ATOM; for instance, Participant 13 stated that "*even the walls of the Atom are important for us*", and Participant 3 shared his contentment regarding sharing the same location with big game companies by stating that "*although we have not made*

collaborations with them until today, it feels good to know that we are here in the same building with them.”

At the same time, our findings support the study of Chandler et al. (2011) regarding the utilization of effectuation in new firms. However, in Chandler et al.’s study data was collected by a survey, which makes it difficult to understand whether effectuation was used as a general decision-making strategy or only for particular decisions. On the other hand, in this study, the data is collected with semi-structured interviews and the phases of the entrepreneurial journey are examined. By this way, one can see the context of effectual or causal decisions, which helps to distinguish between the entrepreneurs’ overall approach to decision-making from task-based decisions (Landstörn et al., 2012).

In this study, our interpretation of data revealed eight key phases of the entrepreneurial journey, which can be also considered as sub-phases of the organizational stages. The profiles of participants in this study, mostly corresponds to entrepreneurs at the first stage of Greiner’s organizational maturation model, which relies on individual and creative actions of the entrepreneur for his/her firm to get off the ground; so that in this phase identifying, quantifying, and managing risks may not be well-realized in the start-up phase (Greiner, 1998). Our findings are in line with Greiner on this aspect. However, I suspect that video game companies may not reach to the stable phases in Greiner’s model (1998); since the video game industry must allow for creativity throughout all of its development phases. Besides, high-dynamism, in terms of emergence of new user profile, and new digital platforms will shorten the stable phases in which coordination and control are required.

It was found that causation was the dominant decision-making approach for Phase 7 and 8. In Phase 7, the dominance of the causation approach can be explained by the predominance of limiting factors, i.e., obligations to grant programs or commitments to investors toward establishing a legal entity. In Phase 8, the dominance of causation in team reconfiguration decisions can be explained by the critical importance of team harmony for entrepreneurs. Another possible reason for this can be the emergence of

“more specific” needs for human capital as organizations grow (Davidsson and Honig, 2003, p.322).

Nascent entrepreneurs are categorized based on the content, intensity, and continuity of “precursor activities” for establishing a business (Carter et al., 1996). According to this view, entrepreneurs can be grouped as those who “started a business”, those who are “still trying,” and those who “gave up” (Carter et al., 1996). Entrepreneurs who are “still trying” refer to those who undertake fewer activities and/or devote less time and effort with respect to entrepreneurs who started their businesses or who gave up (Carter et al., 1996, p. 162). In this study, the student entrepreneur profile was created based on the entrepreneurs’ starting conditions. Some of the entrepreneurs were full time entrepreneurs at the time of the interviews. However, it can be beneficial to have a closer look at entrepreneurs in this category.

6.5. Chapter Summary

In this chapter, the challenges encountered in terms of the classification of causation and effectuation are explained. By addressing the embedded nature of decisions into participants’ entrepreneurial journey and the evolutionary characteristics of decision-making processes, further clarification of the data coding is provided.

In order to understand how participants justified their decisions during their entrepreneurial journey and how they framed success, an entrepreneurial success model is derived from the analysis of qualitative data. It is seen that participants note market experimentation, marketing strategy, and team management as critical factors for success in the video game industry. Building on this entrepreneurial success model and the findings derived from the analysis of entrepreneurs’ decision-making approach in each phase of their journeys, a grounded theory model is developed to explain the employment of effectuation and causation throughout the entrepreneurial journey of participants by considering the impact of triggering factors. It is found that triggering factors can be limiting or expansive for entrepreneurs in terms of the flexibility or constraints they impose on the decision-making process. Next, two different types of

effectuation are identified and their differences in terms of context and process are explained. Finally, key findings of the study and the proposed grounded theory are discussed in terms of their relevance and impact on the extant literature.



CHAPTER 7

POLICY IMPLICATIONS

This chapter focuses on the policy implications based on the findings derived from this study. Policy implications of this study are handled in two main goals. Section 7.1 discusses the policy recommendations for increasing the resources of entrepreneurs and companies in Turkey in the video game industry, while Section 7.2 elaborates on policy recommendations to design a favorable ecosystem in Turkey for companies to survive, grow and triumph in Turkey. Finally, Section 7.3 discusses how policy-makers can approach to video game industry by addressing several challenges.

With this study, it became possible to reflect the functioning of video game industry; an area which was under-researched if not ignored in Turkey in academic studies despite its increasing contribution to economic growth and policy attraction towards it. By exploring the decision-making approaches of entrepreneurs throughout their entrepreneurial journeys, this study derived a fact-based comprehension of the video game industry with its dynamics, changes, challenges, opportunities and coping mechanisms from the entrepreneurs' viewpoint. The findings obtained from this study have several implications for entrepreneurs and game developers, the body of management in the ecosystem and also for policymakers.

This chapter firstly examines these policy implications at the macro, meso, and micro level and provides a complete policy framework with making specifications on policy aims, tools, and targets. Micro-level refers to policy implications related to skills acquisition, meso level mostly covers industrial strategies and macro level focuses on

changes in the existing innovation system considering all relevant intuitions, socio-economical dimensions, and existing policies.

I have an evolutionary approach to economics; which can be tracked throughout the dissertation especially in terms of research design and research questions. Therefore, the policy implications also handled in a similar way.

According to Metcalfe (1995, p.30):

Evolutionary theory is concerned with why the world changes the way in which technological competition is the driving force behind and economic development. Process and change, not the equilibrium and state are its central concern.

In this view, the economic system is considered as a complex system of rules (Dopfer, Foster & Potts, 2004). So that, the evolution of an economic system indeed refers to change in generic rules which occurs “both in the minds and resources” (Dopfer & Potts, 2008, p. 8). Such generic rules have a subject dimension which contains the cognitive and behavioral change of the micro-agent and object dimension which contains the social and technical change (Dopfer & Potts, 2008).

The central role of cognition and learning in innovation was also acknowledged by Noteboom, (2008). This study mainly revealed the subject dimensions by examining the decision-making approaches of entrepreneurs’ (micro-agents) and strategies they used to adopt or adapt to uncertainty and various challenges imposed in the video game industry.

Moreover, this study showed that entrepreneurship had social dimensions which have impacts on the decisions of individuals. By analyzing the triggering events of each phase of the participants’ entrepreneurial journey; it became apparent that even a seemingly individual act of decision-making was shaped by institutional and organizational settings. This finding has strengthened the view that entrepreneurship is indeed a social process in which systemic features have considerable effects (Radosevic & Yoruk, 2013). Therefore, at the policy-making level, it was found

necessary to stretch beyond the Sarasvathy's effectuation framework; which underlines the individual (or subject dimension) as the creator of entrepreneurial opportunities and to include the systematic factors (object dimension) that laid the foundations of entrepreneurial action to take place.

I believe that the policy recommendations derived from this study will be best utilized if they are considered as a part of the wider innovation system in Turkey. For this reason, the national innovation system is used as the main policy framework. The concept of national innovation system (NIS) is built on the acknowledgment of the role of national institutions as an explanatory factor for the changes in the rate of technical change and economic growth between countries (Freeman, 1995). Every system is built around a goal, for NIS this goal is to enable development, diffusion, and use of innovation in society (Edquist, 2005).

The NIS approach basically draws a universe composed of actors, organizations and institutions. Edquist (1997) defines national innovation system as "all-important economic, social, political, organizational, institutional and other factors that influence the development, diffusion, and use of innovations". Institutions are "rules of the game" (North, 1991), they are determined by common habits, norms, routines, established practices, rules, laws and so on (Edquist, 2005). With this conceptualization in mind, the NIS approach considers innovation as the result of evolutionary processes of both "individual level actions" and collective system that "creates and distributes knowledge" (Chaminade & Edquist, 2006).

In this study's sample, all companies are born global, they have access to global markets and a wide range of players from different cultures and countries thanks to the availability of digital platforms. Yet, they are bounded by local conditions including the education system, networks, financial sector. On the other hand, most public policies are developed at the national level (Edquist, 2005). In other words, national conditions still play a role in innovative activity (Freeman, 1995).

In this study, policy implications are based on the findings of this research. Yet, the proposed policy framework targets a wider audience; video game industry as a whole in Turkey. With this scope in mind, this study defines mainly two policy aims.

These are:

(i) increasing the resources of entrepreneurs in VGI

(ii) designing a favorable ecosystem for VGI companies to survive and grow their businesses in Turkey.

7.1. Increasing the Resources of Entrepreneurs

The main finding of this study revealed that entrepreneurs with different profiles used non-predictive decision-making logic (effectuation) more than predictive decision-making logic (causation). This can be interpreted as the existence of an environment in which uncertainties distorted prediction and planning; so that entrepreneurs could not take goal-driven actions. This finding also confirmed the previous studies on video game industry suggesting the absence of a proven success method or dominant success paradigm in this industry (Lampel et al., 2000). I argue that some part of the uncertainty may stem from an actual lack of experience, knowledge, abilities or resources. Therefore, the first policy aim is focused on making entrepreneurs richer in terms of resources in order to downshift the negative impact of uncertainties and to provide entrepreneurs the means of control for their strategic decisions.

By this way, entrepreneurs will have more tools to explore and exploit market opportunities and handle crisis periods more smoothly. On the theoretical aspect, this policy aim is also in harmony with the effectuation theory; suggesting decision-making as a means driven act. It is not a reasonable goal to remove all uncertainties related in VGI, but by equipping entrepreneurs with more resources it would be possible to overcome the systemic vulnerabilities of game companies and entrepreneurs.

7.1.1. Micro recommendations

The resources implied by this policy aim are basic knowledge, network, skills, and financial resources. However, several specific resources are also identified within the lens of specialized complementary assets. In the case of the video game industry, such assets are defined as a large portfolio of content, marketing skills, having relationships with gatekeepers and the firm's reputation (Broekhuizen et al, 2013). Therefore, policy recommendations at micro-level mainly focus on improvements in these domains.

7.1.1.1. Designing specified technical and market-oriented training programs

The rationale for this policy recommendation is to compensate for the lack of technical knowledge of game developers in Turkey. This study revealed that entrepreneurs found themselves in situations where they needed to learn various subjects on their own. Being obliged to learn techniques on their own, being forced to undertake tasks that are out of their profession or interest, combined with the vaguely defined responsibility areas and the small size of the teams reflected themselves as inherent challenges by the participants of this study. The interviews indicated that participants attempted to learn several game development or marketing techniques and strategies through accessible means; from the open source of information platforms such as YouTube, game magazines, books, and blogs. Although some of the participants were able to build expertise in one or two techniques; the current conduct of knowledge acquisition shows a serious problem with the insufficiency of the current ecosystem.

Knowledge acquisition and skill building in this way bring an important disadvantage in terms of the time and opportunity cost of missing opportunities in a fast-changing industry. The availability of the training materials shows the fact that for some technical domains, knowledge can be found in codified or articulated forms. However, "What is codified for one person of the group maybe tacit for another" (Cowan, David & Foray, 2000, p. 225). So, agile policy responsiveness (Paunov & Guellec, 2018) is needed in innovation policies. Innovation systems approach suggests that the goal for the policymaker would be to increase the learning and adaptive capabilities of firms

(Metcalf, 1995). Therefore, the first policy recommendation focuses on providing specified training programs in video game development and digital marketing. In this respect, incubators, technoparks and game industry associations such as TOGED³⁰ and OYUNDER³¹ would be the primary coordinators of the training considering their partnerships and accessibility in the industry. These organizations should take a bridging role between the trainers and trainees; since some of the specialists may not be located in Turkey.

Some of the prevalent training that were mentioned in this study were game analytics, app store optimization, user research, user experience tests and so on. Since it was not the goal of this study to make an analysis on detecting the needs of industry, I suggest that the content of the specified training programs should be designed based on the demands of the entrepreneurs and by systematical monitoring of the games industry in a pro-active manner. The tool for this policy recommendation is inviting experts abroad on the identified technical issues to give training for a three-month period. The target with this policy is to make sure that entrepreneurs do not fall behind their global competitors in technical and marketing issues on game production. The primary audience of these training would primarily be the group of people who were covered in student entrepreneurs (STE) profile.

³⁰Based in Ankara, TOGED is the leading organization in digital game industry. Established in 2014 by the leading stakeholders of industry with the mission to develop local game industry in Turkey. They have a facilitator role in the development of local game industry, representation of the Turkish game industry in the international scale, play a bridging role to various professionals of game industry, increasing the quality of workforce, increasing public awareness about digital games, providing technical training programs for professionals, enhancing the work conditions, standards and legislative regulations. Last access: 29.01.2019 <http://www.toged.org/about-us/?lang=en>

³¹ OyunDer (The Foundation of Game Designers, Developers, Production and Publishing) is a non-profit organization based in Istanbul. They carry out the lobbying activities in and abroad for digital game industry in Turkey with the vision to make Turkey the strongest ecosystem in the globe. They have members from game developers, producers and publishers, graphics art professionals, animation professionals, sound technicians, sub-contractors, service provider financial experts, legal experts, amateur and professional industry representatives, technology enterprises, students and academicians. Last access: 29.01.2019 <http://www.oyunder.org/hakimizda/misyonumuz/>

On the other hand, generic knowledge and experience in these domains should be put to open access for game developers in technoparks if possible. I believe that this is a micro-level problem but solving this will generate meso and macro level consequences. The key aim here is to turn entrepreneurs as more skillful as they can be; without defining a particular goal. How they will use their skills and knowledge should be left to their will. A division of labor between government and private sector can take place for the goal of competence building since both parties contribute to the knowledge creation and distribution processes and since competence building both covers formal education, “learning-by-doing”, “learning-by-using”, “learning by-interacting” and specific training (Chaminade & Edquist, 2006, p. 151-152).

7.1.1.2. Providing training on emotional intelligence and team communication

This study revealed that motivation was just as another asset as money or time. So, the lack of it damaged team relations. Adversely, an increase in motivation gave entrepreneurs the will to move forward in the face of adversities. In some cases, it was the only fuel of the “ship” that entrepreneurs had.

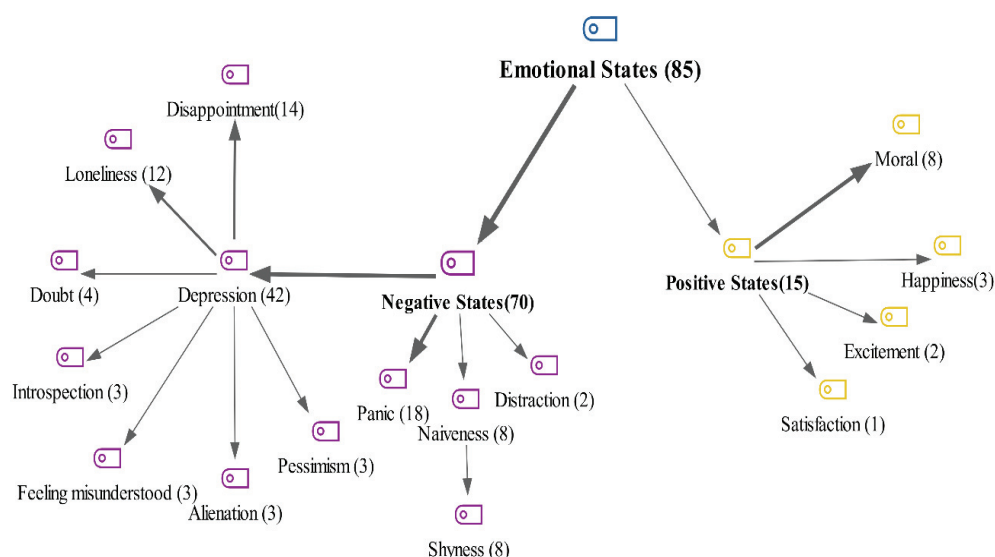


Figure 11. Hierarchical Code-Subcodes Model Map derived from Max Qda for “Emotional States”

It can be seen from Figure 11 that, participants declared that they went through depression, hopelessness, anxiety, and demotivation. Some of them mentioned that these processes had physical implications on their bodies, social and family relationships and work-life balance. These experiences are common for works that have creativity at their core or start-up culture that acknowledges failure. However, it must be kept in mind that, VGI is composed of relatively young people. The age of the participants of this study changed between 20-46; the most crowded profile of entrepreneurs was student entrepreneurs and the average age of them was 25³².

Most of the participants were defined themselves as introverts, a characteristic that is common among the creative workforce. Moreover, emotional barriers were observed in terms of shyness, avoidance from interaction and negative predispositions towards networking. Adversely, positive emotions such as pride, excitement, and relief had made a central role in re-engaging in a challenging task and maintaining their businesses. These findings show that emotional and psychological factors play an important role for entrepreneurs. It is worth mentioning that self-presentation, networking and establishing communication and relationships are not automatically provided by the formal education system in Turkey, therefore a political intervention is needed. The target audience for this policy would be game developers and entrepreneurs who are geographically clustered in technoparks; especially in pre-incubation and incubation centers. The management of technopark should be the main responsible actor to provide emotional resilience training from the experts in the fields to its incumbents. The training can be designed as a series for different topics and provided at least two times a year.

³² The average age of the participants was calculated based their ages as of interview date. It should be considered that they were younger when they had first started their entrepreneurial journey.

7.1.1.3. Enhancing the consultancy services

Mentorship services are provided under several accelerator programs both by public and private in Turkey; such as E-Tohum³³ or Gamer's Qube³⁴. A few participants who had worked with mentors in a formal mentorship relationship declared that "Existing mentorship programs do not work. They pontificate". Interestingly, our examination of the participants' network relationships showed that participants had mentors among their close relationships. Most of the participants identified ATOM directors, former graduates of ATOM or more experienced entrepreneurs in the game industry, or people whom they know from previous jobs such as former employers as a mentor. The content of the mentorship relations turned around taking advice on technical subjects, business plan, international markets, networks, motivation, future of the game industry and so on.

Another important anecdote for these relationships was their mixed nature in terms of social and business. This finding indicates a design problem in mentorship services. Therefore, this policy recommendation suggests an open and long-lasting communication in mentorship relationships; rather than a top-down communication for a limited period of time. The content of the mentorship relations should also be revisited. Participants mentioned that mentorships should focus on marketing, trademark, work culture, talent management, and globalization, instead of a mentoring approach focused on business performance. Communication, representation and keeping the firm reputation should be the themes of consultancies. This recommendation is also in line with our findings on specialized complementary assets in VGI. Student entrepreneurs, job quitters, and professional idealists would be the target of this policy recommendation.

³³ <https://www.etohum.com/en/>

³⁴ <https://www.gamersqube.com/>

7.1.2. Meso recommendations

7.1.2.1. Financial access

Access to finance has central importance since it promotes entrepreneurial experimentation which is a key mechanism in innovation systems. In the case of the video game industry, its import becomes even more severe; since game development is a creative work and creativity requires heterogeneity. Therefore, Turkey needs a variety of entrepreneurs, game ideas and business models. As one of the participants stated, “the biggest danger for the industry would be to people stop trying”. On the other hand, our findings showed that financial bottlenecks were major triggering factors equally with uncertainty in the crisis phase for the participants of this study (See Table 28). Participant 11 stated that “Your chance to succeed is very less. That’s why lots of people quit or start to work at somewhere else since they believed that they cannot have success or thought that they are wasting their times”.

99.81% of the economic value of Turkey is provided by SMEs; in which firms with less than ten employees composed the 96.44% of the total SMEs (OECD, 2018a). Small firms also compose the highest share of employment with 40.8% of total employment in Turkey (OECD, 2018a). De Marco, Di Minin, Marullo and Nepelski (2019) addressed that for SMEs starting a business in digital platforms have low entry barriers yet scaling up is harder due to finding a profitable business model, secure funding for growth and orchestrating external communities to build an innovation system. Therefore, the financial access mechanisms should be planned for entry phase and scale-up phase separately. Yet, policies aimed for financial support should concentrate 70% on early phase and 30% on scale-up phase.

Start-Up Phase:

Public, private or matching investments are the major ways of financing industries. Participants stated that private sector investors generally avoid entering into this field and if they do, participants stated that investors approach the industry as if it is a stock

market. Participants stated that investors were eager to consolidate their returns, lower their risks or request for a high number of shares in exchange with small amount of investment. Participant 2 mentioned this behavior as “Classic!” There were a few entrepreneurs who had fruitful investor relationships; their investors helped them to survive and grow their businesses under this study’s scope. Yet the remainder of them were disappointed by the search and convincing process for investors. Some of them were reported that they felt abused during the negotiation process, as a result of the pilot projects they delivered, and some considered it as “waste of time”. It was noticeable that the majority of the participants did not have any investors and was not willing to make investments outside. The reason for this can be the value they put on being independent in their decisions. The eagerness for keeping the control of the firm was addressed as a potential reason for the refusal to venture capital in the study of Croce, Grilli, and Murtinu (2019) as well.

Given this environment, the necessity for public investment is apparent for early phase start-ups. Public funds are the primary source of support for projects in the idea phase in Turkey (Startups-watch, 2019). Especially the TUBITAK BIGG program (formerly known as techno-entrepreneurship support), KOSGEB entrepreneurship support are the primary public funds used by participants of this study.

The funding system is basically designed as competitive project funding in Turkey, regarding the entrepreneurship incentives. This approach on funding focuses on selecting the best projects after a contest among applications and giving grants for a certain period of time, budget and scope (Larrue, Guellec & Sgard, 2018). The participants agreed that the public funding system was improved in the last years. Yet, a general complain about the design of support programs was also observed. Especially during the application process most of the participants stated that it was had to complete; not only because of their lack of experience about thinking business wise but particularly because of the unpredictable aspect of budget and time schedule for tasks. Moreover, this study showed that most of the entrepreneurs had to alter the business models they presented in the support applications for various reasons. It is not surprising because digital platforms are also considered as learning laboratories for

business models (De Marco et al., 2019). The participants complained about the discordant nature of the application and evaluation criteria, the orientation on education and/or R&D for the candidate projects and their scope on the marketing and promotion of activities.

A potential way to access finances could be global and local crowdfunding³⁵ platforms at least for the idea phase, yet only one participant stated that they used these platforms at the early phase and one participant mentioned that they were considering it as an option. Unfortunately, it does not seem to be a major finance mechanism and this finding is in line with OECD; on the very little share of crowdsourcing in financing businesses (OECD, 2016).

As a result, for start-up and early phases, public funding should cover game prototyping costs of the game development process and marketing budget³⁶ for at least one year. The funds could be designed as micro-funds and competitiveness should be reduced since there are already very few entrepreneurs in this field. Moreover, performance indexes should encompass the inherent uncertainty of video game development and flexibility on business models should be available.

Finding private and public investment is easier for successful companies in the scale-up phase. Since they have a proven market success, it enables legitimacy, which in turn reduces investment risks. For financing scale-ups, successful companies should be supported via undertaking the costs of promotion activities abroad. There are

³⁵ “ArıKovani”, “Buluşum”, “Crowdfun”, “Fongogo” and “Ideanest” are the crowdfunding platforms in Turkey.

³⁶ Marketing budget is particularly important for free to play mobile games. Because advertisement is the main monetization method for this type of games. Several participants declared that they had to give up their business model due to the absence of a fair amount of marketing budget.

already public incentives for such goals yet their adoption should be increased and bureaucratic processes should be shortened.

7.1.2.2. Increasing interdisciplinarity

It's worth to evoke that video game production requires interdisciplinary teamwork; and covers at least three disciplines³⁷. In a typical game development team, software engineering, graphic design, level design and marketing can be counted as the essential disciplines. Interdisciplinarity and using multiple knowledge bases are necessary to survive and to create innovative products.

The game industry has developed as a result of the knowledge and skill transfers in other industries (Izushi & Aoyama, 2006). Yet the origin of the skill base varies from countries. In the UK it was formed by individual programmers known as bedroom coders; in Japan, most of the knowledge transfer realized from people interested and experienced in comic books, animation movies, consumer electronics and arcades (Izushi & Aoyama, 2006). In Finland, it has started as an underground sub-culture called *demo scene*; composed of programmers who cracks game intros and develops their demos (Jorgensen, Santqvist & Sotamaa, 2017). This study showed that in Turkey, the skills are transferred from the ICT industry and the majority of the entrepreneurs had a background from computer engineering. On the other hand, clubs in universities and internet café culture had contributed to this interest.

Currently, video game production is focused around mobile platforms in Turkey. Production outside the mobile market should be encouraged; as well as quality, sophistication, and art-content in games. However, this requires immersion with different knowledge bases. Participant 18 addressed the need to establish links with the art departments of the universities and artists. Therefore, the number of people who can potentially work together will be increased and it shortens the time required for

³⁷ These disciplines can vary between business models.

learning. Art production contains symbolic knowledge which is exchanged by face to face interaction and “show-how”. Therefore, it could be helpful to have artists and game developers in the same cluster.

On the other hand, the aspects of game development other than coding must be introduced to people such as writing the fiction. In any circumstance, exposure to art and aesthetics should be encouraged. At this point, policies should aim for opening up the obsolete spaces into the use of creative people and creating meanwhile spaces in cities (Bosetti & Colthorpe, 2018) could be a good start.

In Turkey, interdisciplinary platforms such as the Creative Industries Council (YEKON) aims to gather different actors in the creative industries ecosystem and develops projects on different topics mainly for İstanbul³⁸. Role of creative industries is integrated on the development agencies’ strategic plan in Ankara³⁹ and İzmir⁴⁰ as well. Yet, these efforts should be dispersed in other cities as well.

Another concern for achieving interdisciplinarity is the specific leadership approach necessary for creative industries. Participants based in the ATOM or had a prior connection with ATOM declared that they can achieve great things if they can come together as a bigger team; if they can enable the disciplined work environment. Considering the fact that, everyone has a different work tempo.

³⁸ <http://www.yekon.org/projeler.htm> Last access: 08.05.2019

³⁹ Ankara Kalkınma Ajansı (2014) Ankara bölge planı 2014-2023. Ankara. http://www.ankaraka.org.tr/tr/ankara-bolge-planı-2014-2023_295.html Last access:08.05.2019

⁴⁰İzmir Kalkınma Ajansı (2014). 2014-2023 İzmir Bölge planı. <http://www.izka.org.tr/upload/Node/30953/xfiles/bolgeplani.pdf> Last access: 08.05.2019

Creative business requires out of the box thinking yet, creativity stems from the excellence in one domain and integrating ideas in different domains (Amabile, 1983; 1996). Therefore, it is important for our education system to provide creative thinking, creative framing of problems and creative problem-solving. It is important for creative people to enrich themselves with a different source of ideas.

7.1.3. Macro recommendations

7.1.3.1. Establishing programs in universities for video game design and development

According to the data of Entertainment Software Association, there are more than 400 colleges and universities offer degrees in video games in the USA⁴¹. The number is 315 for UK (Mateos-Garcia, Bakhshi & Lenel, 2014). For Turkey, there is one undergraduate program for animation and game design, two for cartoons and animations, three programs for digital game design, one program in cinema and digital media⁴². Problems stemming from the lack of qualified labor in the digital games industry was also addressed by government representatives and industry experts (Information and Communication Technologies Authority, 2017). The main reason was considered as the inadequate number and content of undergraduate level university programs on games in Turkey. Lack of a systematized education and training in game development imposes itself as an important disadvantage stemming from the design of the national innovation system of Turkey. Therefore, policies should aim for compensating the need for formal education and particular training. Undergraduate, graduate and certificate programs should be established. Four years of the education program which includes game design, game analytics, and coding must

⁴¹ <http://www.theesa.com/about-esacourses-certificates-degree-programs/> As of day of access, the website indicated 521 college programs in video games in USA. Last access: 30.04.2019

⁴² <https://yokatlas.yok.gov.tr/lisans-anasayfa.php> Last access: 11.05.2019

be provided. One of the participants of this study suggested to transform the publicly funded part of education into a MOOC and put into access to everybody. There have been several initiatives at the middle school and high schools for introducing game development to the students, especially by TOGED⁴³. Yet these initiatives should be turned into a national program and game development should be integrated into the curriculum in a planned way. Pilot programs should be established at the undergraduate level in a few universities which can satisfy the infrastructural base such as Koç University or METU. Students who are enrolled in these departments should be given scholarships in return they must stay in Turkey. Students in undergraduate and graduate game design programs have the chance to work in the industry before they graduate.

7.1.3.2. National policies for acquisition of critical human resources

This recommendation complements the previous macro policy on the establishment of formal education programs. Acquisition of critical HR is important for two main reasons. First, in order to compensate for the need for certificate programs about specific training. Second, in order to build and strengthen the formal university system on game development and multimedia studies. For these reasons, Turkey should have a national policy to acquire professionals and academicians abroad for longer terms. Still, this requires Turkey being attractable for creative workers locally and globally. Qualified labor is hard to find in Turkey and when it is found, it is a challenge to keep them since they generally prefer to work abroad. Therefore, reverse talent - drain programs should be designed for Turkish experts, academicians and researchers abroad to contribute to the building of the video game industry ecosystem in Turkey. Any policy for this purpose should provide the budget and flexibility in decision-making. On the other hand, bureaucratic obstacles at the current game development

programs should be removed for those who want to give lectures on game development, especially for industry professionals and artists.

7.2. Designing a Favorable Ecosystem

Recently, entrepreneurial activities and entrepreneurial performance are put into a wider spectrum via the concept of entrepreneurial ecosystems; which addresses the role of context and geographical agglomeration (Cohen, 2006; Teece, 2007; Pitelis, 2012; Zahra & Nambisan, 2012; Autio et al., 2014; Mack & Mayer, 2016; Spiegel, 2017; Audretsch & Belitski 2017; Acs et al., 2017). Entrepreneurial ecosystems are constituted by local culture, social networks, investment capital, universities, and economic policies (Spiegel, 2017). Entrepreneurial ecosystem approach underlines the interdependence between actors and factors and conceptualizes entrepreneurial activity as an outcome of this dynamic relationship (Acs et al., 2017). Principles of the management of entrepreneurial ecosystems identified as (1) protection of evolutionary mechanisms by ensuring the diversity and learning capabilities, (2) holistic thinking, (3) supporting self-regulating mechanisms; by considering ambiguities as a factor to confront, (4) strategies that focus on weaknesses of the ecosystem and (5) a balanced view in intervention (Kuckertz, in press).

Turkey has the goal to transform herself into an information society, thereby increasing the information and communication technologies services and enabling the safe, fast and affordable access to these services has a central role in this goal (BTK, 2019). Supporting games notably, mobile applications, software and information technologies are considered among the information and communication technology policies under the 10th Development Plan of Turkey (BTK, 2019). As of June 2018, there are 79.5 million people who have mobile phone subscriptions and 71.8 million of people who take broadband services in Turkey (BTK, 2019). Strategic goals are identified to support innovative digital technologies (BTK, 2019, p.73). It can be said that there is already sufficient rationale for taking steps towards a favorable ecosystem for entrepreneurs and businesses in Turkey. In short, this policy aim asserts that it must be achievable for entrepreneurs in VGI to start, grow and triumph their businesses in

Turkey. For this reason, all the necessary organizations, institutions, culture, finance system, the education system should be built.

7.2.1. Micro recommendations

7.2.1.1. Enhancing and diversifying knowledge creation mechanisms

In the NIS framework it is important to acknowledge how knowledge is created and transformed in the system. The central role of knowledge in firms was acknowledged by many scholars (Nelson & Winter, 1977; Penrose 1959/2009, Drucker, 2012/1999). In today's world, the knowledge that cannot be copied reflects itself as a source of competitive power; so that tacit dimension has been integrated to the science and technology policies (Cowan et al., 2000). Polanyi (2009) proposed that people can know more than they can tell; which is a "tacit knowing" and knowledge is hard to exchange among people if it is tacit. Tacit knowledge is mostly "sticky" and difficult to extract (Von Hippel, 1998).

Nonaka and Takeuchi (1995) emphasized that knowledge generation does not equal to knowledge absorption; so that knowledge is generated through as a process of socialization, externalization, combination and internalization processes. On the other hand, the creative process involves a complex cycle of knowledge flows (Jeffcut & Pratt, 2002). Yet, the nature of knowledge which is integral to production in VGI should be acknowledged. As it was discussed in Chapter 3 of this dissertation, video games are also cultural products. Cultural production contains aesthetic inputs which require special abilities to interpret these symbolic knowledge base (Asheim, Boschma & Cooke, 2011). Due to the fact that, interpretations of the symbolic knowledge are embedded into the culture it belongs, there is a great deal of tacit dimension for this knowledge; for this reason, face to face interaction and knowledge of potential collaborators become significant (Asheim et al., 2011). Informal knowledge sources become more important than scientific-procedural knowledge for cultural and creative industries (Martin & Moodysson, 2011).

In this study, the facilitator role of clusters in terms of rapid knowledge transfer based on informal interactions in the local milieu (Malmberg & Power, 2005; Porter, 1990) was observed. Tacit knowledge is exchanged inside the community thanks to the regular meetings in incubators, monthly informal industry meetings such as Game Talks and discussions held at TOGED. These kinds of spontaneous knowledge exchange and socialization platforms should be encouraged further.

Whereas, the willingness of the epistemic community contributed to the knowledge creation as much as the positive externalities of geographical proximity (Breschi & Lissioni, 2001). It was observed that individuals had an important role in the Metu Technopark, in terms of knowledge creation. For instance, self-learned entrepreneurs shared their knowledge and experience as an integral part of the training of ATOM for the new attendees of the incubator program. The training from the relatively more experienced entrepreneurs in VGI helped the new attendees to shape their expectations about the industry; made them more realistic and provided them a new vision.

On the other hand, it was observed that people adopted the mindset, strategies and/or tools of other entrepreneurs'/developers' when they needed to decide on their actions. Another observation worth to mention here is the participants' open attitude in terms of information sharing. Thanks to the existence of strong ties in close-knit networks; transfer of the complex and tacit knowledge was achieved (Granovetter, 1973). The majority of the participants were in close collaboration with the companies they trust, have cognitive proximity with and shared their experience and knowledge consistently. The level of cooperation was beyond my expectations and it was one of the most surprising aspects for this study. It can be said that the knowledge generated in the Metu Technopark ecosystem was diffused successfully. Therefore, this policy recommends and warns policymakers that it would not be beneficial to assume that clustering the entrepreneurs in VGI will directly result in a healthy knowledge generation process. Technoparks and incubation programs should encourage informal knowledge creation mechanisms and ensure open communication in incubation centers. Interactions, non-linear and spontaneous learning within the organizations and

between the components of the innovation system should be considered (Chaminade & Edquist, 2006; Malmberg & Power, 2005).

Knowledge creation and diffusion mechanisms can be enhanced via the mobility of the creative workforce (Bakshi & McVittie, 2009) and it is known that mobility rates are higher among creative workers (Florida, 2012). Knowledge transfer is key to ensure the contribution of CCIs to the innovation in other sectors as well (Innocenti & Lazzaretti, 2019). However, knowledge flows are embedded in regional labor networks and they are the results of the broader social institutions that support ideas to flow (Almeida & Kogut, 1999). In other words, knowledge flows are selective. Currently, there are various disadvantages for the workforce in Turkey; since participants reflected that the number of companies that they would like to work for is very few.

The literature on industrial clusters suggests that since firms in the same cluster are visible to each other, it will give companies the opportunity to observe each other and trigger the instinct for competitiveness; which enhances knowledge creation (Malmberg & Power, 2005; Porter, 1990). Yet, in this study one cannot speak of an apparent competitive environment described above. A plausible explanation for this can be the flexible market opportunities in the video game industry or a small number of firms. Besides, since companies are already in a global competition, they may have chosen not to compete at the local level. Yet, I consider the lack of competition as a blocking mechanism for knowledge creation. For this reason, non-rivalry competition should be integrated into policies. In this study, the exchange of knowledge took place between a similar group of entrepreneurs in terms of the level of their businesses. The weakness of links between big and micro size firms was observed. Therefore, policies should aim for interaction, knowledge exchange and cooperation of different size of firms.

The variety of the ecosystem actors in terms of size, business model, technological domain, management approach should be considered since localized capabilities can also decay in time due to “asset erosion”, “substitution” and “lock-in” (Maskell &

Malmberg, 1999; Powell & Grodal, 2005). Caring for variety at the micro-level will protect the clusters for such dangers in the long term. Therefore, a blend of strong and weak ties should be preferred in networks. Since, “ties that bind”, may turn into “ties that blind” (Powell & Grodal, 2005).

7.2.1.2. Increasing the number of specified incubation centers

Incubators are enabled by the Law No: 4691 about Technology Development Zones. As of November 2018, there are 60 active technoparks in Turkey⁴⁴; the majority of them are focused on the ICT industry. The idea of industrial clusters stems from the advantages of spatial proximity to intensify the impact of mechanisms that makes a dynamic industry (Malmberg & Power, 2005) and its contribution to learning (Bathelt, Malmberg & Maskell, 2004). In line with these arguments in the literature, participants of this study mentioned that being in ATOM pre-incubation center/ METU Technopark provided them “an expedited the learning experience”. The participants’ views on ATOM’s advantages are illustrated in Figure 12.

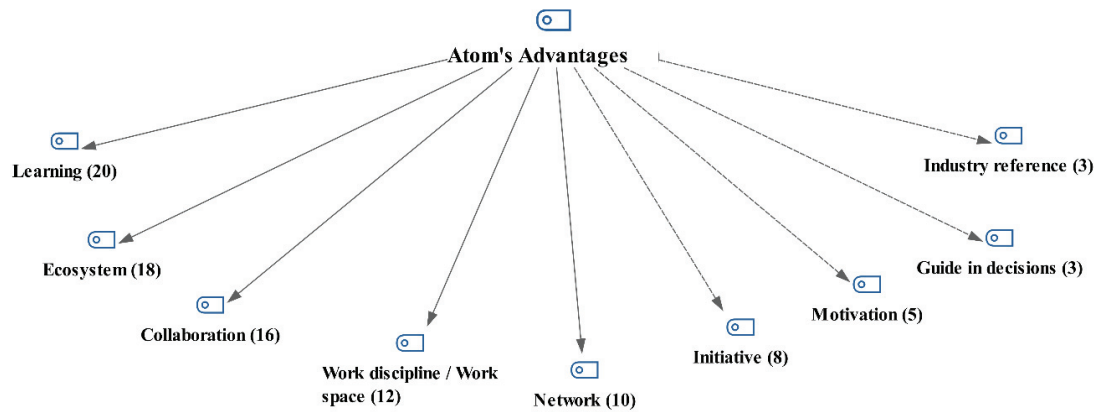


Figure 12. Hierarchical Code-Subcodes Model Map derived in Max Qda for “ATOM’s Advantages”

⁴⁴ <https://www.tgbd.org.tr/turkiyede-teknoparklar-icerik-35> Last access: 04.05.2019

On the other hand, specified incubation centers function as a creative hub with their communities. Yet, know-how, skills, network, access to finance and an enabling environment is key to create and thrive a successful local creative hub (Mehn, 2019). In Turkey, currently, creative hubs for the game industry are located in İstanbul and Ankara. Yet, in the USA and UK, such creative hubs are geographically dispersed and can be found in every city. For this reason, this policy recommendation suggests to increase the number of incubator and pre-incubator programs in technology development zones and to be dispersed in different cities. New centers should be built in cities in which ICT and/or cultural production is widespread. For instance, Eskişehir would be an ideal location due to the university programs on animation technologies and graphical design.

According to Secilmis (2015) the ratio of the creative labor force in total workforce estimated as 2% with the available data in 2011. Considering the impact of creative industries on regional growth, other cities should also integrate creative industries into their strategic plans. However, pre-ante mapping studies should be carried out to understand the distribution of sub-sectors of creative industries in a particular city or region and developing a strategy based on the domains in which cities have a comparative advantage (Lazzeretti et al., 2014) should be given the privilege.

On the other hand, the capacities and resources of the existing incubation centers; in terms of their physical, infrastructural, professional management staff and financial capacities must be increased. Considering the fact that a lack of resources prevented pre-incubation centers to provide necessary services for the incubates (Kepenek & Eser, 2016).

In the future, these specified incubation centers can be a viable mechanism for supporting entrepreneurs; in the manner of competitive institution funding or establishing industry excellence initiatives; similar to research excellence initiatives as discussed by Larrue et al. (2018). By the introduction of competition, the efficiency of the incubation centers can be increased and more self-sufficient in the long-run.

7.2.2. Meso recommendations

7.2.2.1. Designing incentive programs for video game industry

Gonenc (2018) addressed the need for “long-term private capital and risk-sharing” in Turkey, in addition to the government incentives at the early phases of “young skilled start-ups” in order to sustain and increase their economic contribution. In order to reach the critical mass of firms, early-phase and idea-phase support for entrepreneurs carry vital importance. It was already discussed that design issues should be resolved for the existing public funds in Chapter 7.1.2.1. This policy recommendation focuses on the introduction of investments programs specifically designed for game development. The history of the video game industry is rather new in Turkey and the sector has just started to be acknowledged during I was writing this dissertation. On the 31st of March 2019, the Ministry of Industry and Technology announced that they opened a new project call for creative industries under the competitive industries program ⁴⁵.

VGI is a rapidly changing industry in terms of hardware, software, and market demand. For instance, augmented reality and virtual reality technologies have started to enter in the field of the game industry as well. There are limited initiatives for these domains in Turkey and they require a considerable amount of investment for infrastructure; different from the mobile and pc platform games. Public incentives should differentiate the technological requirements of game development projects in terms of budget. Matching investments (public and private) can be also applied to these domains. On the other hand, companies who produce VR/AR services and games declared that⁴⁶

⁴⁵<https://www.sanayi.gov.tr/news.html?lang=tr&haberId=6d85711d-c97c-43a6-a87e-50291e9b035a>
Last access: 10.05.2019

⁴⁶ The tariff problem was mentioned in an informal conversation by a director in a company which produces AR/VR games and services based in Techno park, when the author of this dissertation attended to a workshop in Cer Modern in 27/04.2019.

they have to shuttle trade the necessary gears and hardware when they go abroad; since tariffs are too high and the quota is limited for import. Therefore, tariffs on such constituents should be regulated.

7.2.2.2. Enhancing global connectivity of the Turkish VGI and establishing long-term cooperations

Turkey is a member of Global Game Jam, a global game development event, and partnership country to Gamescom. In recent years, Turkey has increased its global partnerships. For instance, in 2017, TOGED joined the European Game Developers Federation (EGDF). On the other hand, Turkish video game industry has taken the attention of foreign institutions as well. For instance, the British Council has started a program on creative industries that gives its focus on Turkey⁴⁷. However, the study of Kepenek and Eser (2016) revealed the need to increase networks of both private and public incubation and pre-incubation centers. Incubators can play a role to link the microentrepreneurs with global markets (Carayannis & Zedtwitz, 2005). Networks contribute to the learning process due to its advantages for information diffusion, access to specialized assets and resource sharing (Powell & Grodal, 2005). Varieties of networks both formal and informal types are important since different type of knowledge is exchanged in each of them (Powell & Grodal, 2005). Participant 11 considered not being able to develop and launch games for the global market as a “serious problem”. Similarly, Participant 10 mentioned that “even if games are launched in the global market, acquiring users and making money via users are not known in Turkey”. These statements indicate a policy concern for making entrepreneurs more global-minded. The need for global-minded entrepreneurs could best be achieved by international collaborations on game development. At this point,

⁴⁷ <https://www.britishcouncil.org.tr/programmes/arts/creative-industries-focus-country> Last access: 08.05.2019

common programs can be built with Nordic countries such as Finland and Denmark who have a considerable market success with indie games in mobile and pc platforms. This would especially benefit student entrepreneurs and entrepreneurs who attribute a higher value to the artistic aspect of games.

Global partnerships should be encouraged for marketing, advertisement, monetization, and networking. Since, immersion with diverse cultures, different demographics, and game tastes would help to meet with new genres, trends, and new ideas. At this point, Turkey needs to establish formal relationships in the form of research consortia and strategic alliances. Strategical partnerships convey higher chance for innovation for start-ups. Online communities and social media (including more professional platforms such as Linked In) play a huge role in terms of finding a solution to a particular problem, hiring decisions; on the other hand, face-to-face interactions with global actors at international events gave vision and feedback for the business models and confidence in their games.

7.2.3. Macro recommendations

7.2.3.1. Locating the missing actors in Turkish innovation system in VGI

In mainstream economics, policy intervention is justified primarily by the existence of inefficient markets, information asymmetries, and externalities. In the evolutionary perspective, policy rationale stems from system failures (Smith, 2000; Malerba, 2009) and evolutionary failures (Malerba, 2009). The evolutionary view does not picture the government as an outside actor that deals with market failures. Indeed, economic change is only possible with the co-evolution of technology and institutions (Nelson, 2008). So that, the government should engage in the system rather than markets only (Dodgson, Hughes, Foster & Metcalfe, 2011).

Absence of key actors in the system, lack of connection and cooperation among heterogeneous actors and complementary activities and the tension between the established system and new one constitutes the systemic failures (Malerba, 2009).

Therefore, this policy recommendation focuses on establishing the missing actors of the video game industry. Lack of a global publisher company glares as the most important missing actor. Working with publishers create more sustainable and long-term commercial gains for game developers. It also ensures a more stabilized income generation for a longer time thanks to the marketing tools and resources of publisher companies have. For this case, private-public partnerships should be considered and strategic partnership agreements with global publisher companies can be designed.

Alternatively, for the cases with missing actors, governments can strengthen the key public institutions' capabilities to save the actors from "low interaction and low learning" (Malerba, 2009, p. 40). In this case, successful pre-incubator and incubator centers can be turned into a publisher-like structure. Yet, this carries the risk of losing the organizational flexibilities of these centers.

The second missing actor in Turkey is large scale game studios. A big game studio should exist in which the qualified workforce finds themselves a place. This studio could be either built by the government or shared ownership by the government and private sector. It is problematic to create a triple-A studio in Turkey, with the current set of industry and current consolidation of the global market. However, the government should establish strategic alliances with multinational studios to establish a branch in Turkey. For instance, companies such as Ubisoft or Crytek should be given incentives with the terms to employ Turkish game developers.

7.2.3.2. Change in failure culture and promotion of VGI in national level

Video games are often associated with addiction, violence, gambling, and waste of time (Code, 2016). To improve this image, under the scope of the generalization of safe use of internet several workshops and congress were organized in Turkey on digital games theme (BTK, 2019, p. 64). On the other hand, games' positive and negative impact on children's well-being by discussing the possible protective regulations was put into debate under the leadership of government bodies (Gündüz, 2017).

Starting from the high school education people should be encouraged to take part in this sector. There was overall unrest about the fact that the game industry is not taken seriously in Turkey. That is one of the reasons why participants felt the need for commercial success; to prove their families that they can earn money from games. It is only after such achievements; participants had been left free of pressure and disdain. The participants had given examples in which they have encountered such critics and disdain from random people working in the government organizations or in their chats with people responsible for the incentive programs of government. Moreover, they are faced with criticisms and concerns of their close social circle of friends and family members. The underlying idea of these critics was negative views on game development as a decent job or career path to follow. Most of the participants in this study have a background in computer engineering. Therefore, the families of the entrepreneurs have brought alternative career paths in salary jobs in defense industry companies; which are mostly located in Ankara. These concerns can be silenced by success; especially commercial success. However, this general view imposes an additional barrier to increase entrepreneurial activity in VGI; at best entrepreneurs may start to consider this industry as an experiment. They may devote less time, money and expectations. The experiences of participants addressed towards a negative cultural system around games, game development as a profession and game industry in general. The cultural system is considered as one of the components of the macro environments of organizations (Hodge & Johnson, 1970). To fix this public image, industrial advocacy for video game industry should be increased; more representation on national broadcasts, TV, media, and press should be enabled. I believe that such representation on national media can be also used to speak openly about failure as well. At this case, I believe that VGI entrepreneurs would be appropriate examples since they can speak about their failures and owning the responsibilities and do not hide behind a defensive reasoning Argyris (2008). The summary of policy recommendations is provided in Table 29.

7.3. Final Notes to Policy Makers

I believe that the video game industry deserves attention for public support for various reasons. First, the export of Turkish digital game industry in 2018 amounted to one and a half billion US dollars. The industry has doubled its export revenues in two years. Secondly, VGI is one of the components of the ICT industry in Turkey and should be treated under information society policies. Thirdly, creative occupations and creative enterprises are resistant to automation and employment fallouts (Bakshi, Frey & Osborne, 2015). Therefore, supporting creativity and creative industries could be an additional domain to industry 4.0 policies. Fourthly, VGI holds a qualified labor force who has transferrable skills to other ICT industries and defense.

Policymaking approach should balance the economic and cultural dimensions. Throsby (2010, pp. 6-7) argues that although the cultural policy has turned into an “arm of economic policy” the function of cultural industries was more than their economic aspect; they were mainly related with society and its functioning. Digital games are considered as a part of social inclusion goals of the European Union (Stewart & Misuraca, 2013). The number of games that address societal problems such as health, gender roles, migration and peace are increasing in number and contributing to social inclusion. Games are part of the culture and they are avenues for creativity, expression of ideas and therefore a part of the democratic system of countries. The wider role of creativity and creative products should not be dismissed. It can be worth to remind here that; the overall goal of innovation policies is to increase the social welfare of the countries they are implemented.

Innovation has unpredictable aspects; due to the exploration processes, it contains. Unpredictability emerged as a problem at the decision-making processes of entrepreneurs and resulted in reactive decisions in this study. Moreover, the unpredictable nature of innovation process also reflects an accountability problem for innovation policy as well; especially when innovation policies are publicly funded (Noteboom, 2008). Yet these uncertainties can be resolved in time with the accumulation of knowledge; which requires systematic data and insight collection

from the industry. One way to address this problem for policy-makers would be to work together with academicians, industry experts, and civil society organizations on the design and evaluation of policies that aim to support technological and innovative business models. On the other hand, particularly for the digital game industry, each support application can be considered as an opportunity for learning. For this case, key performance indexes can be revisited to cover the participants' main activities; the successful and unsuccessful endeavors in terms of networking, technological capabilities, and business models.

On the other hand, the evolutionary view does not picture the policy-maker as an upper actor in the hierarchy. In fact, the expectation from policy-maker is to "adapt" to the system, rather than to "optimize" (Metcalf, 1995). Metcalf (1995, p. 31) also states that "There can be no presumption that the policymaker has a superior understanding of market circumstances or technological information". The policy makers role should find comfort from the fact that centralized control over the innovation system is not possible since it is a complex system; innovation policies can only influence the spontaneous development (Edquist, 2005).

Finally, the management team in technoparks, incubations or pre-incubation centers should acknowledge the phases of entrepreneurial journey presented in this study and address the triggering factors to create a more successful game development teams with increased quality of games. It must be kept in mind that, learning capabilities of firms and knowledge transfer plays a key role in firm-level innovation performance (Cohen & Levinthal, 1990). Therefore, the management authorities should systematically monitor the lock-in points. Besides, creating a culture that considers failure as a topic not to be avoided but as a chance to learn and indispensable aspect of learning and professionalization must be encouraged.

Table 29

Summary Table for Policy Recommendations

Policy aim	Policy level	Policy aims	Policy recommendations	Policy tools	Policy targets
Increasing the Resources of Entrepreneurs	Micro	To close the knowledge gap between Turkish game industry entrepreneurs and global ones; to fasten the learning process	Specified technical and market-oriented training programs should be provided	Providing special training programs designed by industry experts	Accessing all young entrepreneurs in VGI based in pre-incubation and incubation centers
	Micro	To remove the emotional barriers of entrepreneurs and make them more resilient in crisis periods	Motivation should be addressed as a critical asset and soft skills of the entrepreneurs should be improved	Providing training on soft skills and emotional intelligence	Accessing all entrepreneurs in VGI based in Technoparks in Turkey
	Micro	To enhance the impact of consultancy services	The content and design of the existing mentorship programs should be revisited	Making workshops with management of accelerator programs to devise a new consultancy approach	Consultants experienced in marketing, trademark, work culture, talent management, and globalization topics should be employed
	Meso	To increase the entrepreneurial experimentation	The barriers for financial access for the early-phase ventures should be removed	Differentiating between start-up and scale-up incentives	Achieving a flexible, less competitive model on the evaluation and performance indexes of TUBITAK-BİGG and KOSGEB for micro-funds. Public resources should devote 70% for start-ups, 30% for scale-up.

Table 29 continued

Meso	To increase interdisciplinary	Different knowledge bases should be integrated to enable the production of more sophisticated and high-quality games	A career in the game industry should be introduced to senior year university students in design, literature and art departments	Creating “meanwhile spaces” (as in the UK) in creative hubs to bring creative people together.
Macro	To compensate for the need for formal education	Undergraduate university programs should be established to have a qualified workforce.	Establishing pilot platforms in universities with the available infrastructure	Establishing five undergraduate programs in the top five universities of Turkey in two years. Establishing 100 game design programs in universities in Turkey in 10 years.
Macro	To make Turkey a center of attraction for the creative class and to facilitate university programs	National policies should be established to invite Turkish game developers abroad and to acquire critical human resources in the game industry	Establishing public-supported programs for reverse talent-drain	Calling back 100 Turkish and foreign game developers, artists, industry experts and researchers in two years.
Micro	To foster knowledge creation and prevent lock-in in clusters	Policies should address the symbolic nature of the knowledge base in VGI and non-rivalry competition should be encouraged to increase knowledge generation.	Supporting formal and informal and spontaneous learning mechanisms and introducing new actors with different business models and sizes in the ecosystem	Technoparks and incubation programs should encourage informal knowledge creation mechanisms, open communication and Worker mobility
Micro	To disperse creative hubs in different cities, to reap the contribution of creative industries in regional growth	Number of specified incubation and pre-incubation centers should be increased and existing ones should be provided more resources in	Increasing physical, infrastructural, professional management staff and financial capacities	Integrating creative industries to strategic action plans of development agencies

Designing a Favorable
Ecosystem for VGI

Table 29 continued

	terms of finance and physical infrastructure		
Meso	To reach a critical mass of game companies and to utilize potential market opportunities	Companies which produces AR/VR games should be supported	Establishing specified incentive programs for high-tech game development firms Decreasing the tariffs and quota for AR/VR gears or equipment necessary for digital production
Meso	To make VGI entrepreneurs global-minded	Global connectivity of the Turkish VGI should be improved by making long-term strategic partnerships	Establishing strategic alliances and research consortia with global organizations, establishing common game development programs Establishing strategic alliances with countries which have strong independent game development tradition
Macro	To create a full-functioning innovation ecosystem for VGI	Factors that may lead to systemic failure should be removed. Therefore, missing actors in the ecosystem should be located	Establishing one branch of a multinational triple-A game studio and publisher company located in Turkey
Macro	To encourage people to take part in this industry and to provide professional prestige	The reputation of VGI and societal perspectives on failure should be improved	Utilizing national broadcasted tv channels, online media, and press. A regular series of programs on the game industry and digital media.

CHAPTER 8

CONCLUSION

8.1. Concluding Remarks

As it was stated earlier, this dissertation investigated which phases do entrepreneurs in the video game industry go through in their entrepreneurial journey, to what extent their decision-making approach can be explained by effectuation theory and which factors can explain the changes in the decision-making approaches of them.

During the data interpretation, four types of entrepreneurs emerged based on their initial motivations when they entered the video game industry. These are student entrepreneurs, job quitters, professional idealists, and experienced entrepreneurs. Face-to-face interviews with entrepreneurs, available secondary data and conversations with two directors ATOM pre-incubation center allowed me to develop an eight-phase model of the entrepreneurial process in the video game industry. At the end of this study, I have learned that entrepreneurs typically went through the phase of deciding to become entrepreneurs in the video game industry, team formation phase, business model and product development phase, marketing phase, networking phase, crisis phase, reconfiguration of organizational structure phase and reconfiguration of their team members.

By acknowledging the changing nature of decision-making and its dependency on the environmental circumstances, a separate analysis was carried out for detecting effectuation and causation in each phase. In the within phase analysis, entrepreneurs'

decisions were matched with effectuation or causation type of decision-making by two researchers. Moreover, the antecedents of decision-making patterns and emerging themes that played a role in the decision-making process in relevant phases were also considered.

Within phase analysis on effectuation versus causation approaches, and coding practiced in MaxQda software provided an underlying theme of “market experimentation as an entrepreneurial tool for coping with uncertainty”. I have discovered that “market experimentation”, “marketing strategy” and “team management” were the critical concepts that impacted entrepreneurs’ decisions indirectly.

Moreover, the findings derived from the networking phase analysis exhibited the importance of reputation, portfolio, networking skills and having contacts with digital game stores/platforms as key assets of entrepreneurs in the video game industry. This finding validates the concept of specialized complementary assets in the video game industry (Broekhuizen et al., 2013). In addition to this, I have also identified that being placed in the ATOM pre-incubation center and METU Technopark provided an indirect access for these complementary assets to the entrepreneurs in the sample of this study.

Findings derived from this study showed that entrepreneurs took their decisions mostly in effectuation approach throughout their entrepreneurial journey. Similarly, it was found that the causation approach in decision-making was used less than effectuation, due to the inherent uncertainty in the video game industry. Therefore, I have argued that effectuation theory has a reasonable strength to describe how entrepreneurs make decisions in the video game industry. However, the main finding related with experienced entrepreneurs’ used effectuation less, contradicts with existing literature on experienced entrepreneurs.

I have detected that effectual decisions were used for different purposes and in different contexts. As a logical extension to this, I have distinguished between adaptive

effectuation and explorative effectuation. In adaptive effectuation, capacity building and coping with uncertainty were tried to achieve simultaneously. While in explorative effectuation, entrepreneurs had respectively more resources and they were mostly trying to cope with uncertainty only.

I have noticed that making decisions with the causation approach can only be achieved after entrepreneurs reach a critical point of resources or alternatively, if entrepreneurs had started with more resources in the first place. In order to establish links between these emergent concepts in the decision-making process and effectuation theory, the triggering factors in each phase were labelled as expansive and limiting. Diversion from effectual to causal decision-making was explained by the dynamic relationship between expansive and limiting factors. I have observed that the ability of entrepreneurs in the sample of this study to identify, interpret and use the various forms of capital has evolved and increased through the process.

The transition from effectuation approach to causation approach in decision-making was mediated by crisis periods in adaptive effectuation. On the other hand, in explorative effectuation, entrepreneurs can switch into a causation approach earlier in the venture development process due to the resources they have. The proposed theoretical framework in this study argued that entrepreneurs could increase their resources throughout the whole process; even though eliminating the uncertainties was not possible.

Finally, I suspect that the effectuation theory pictures a somewhat optimistic view and present success through means-driven actions as plausible. Ventures are presented as easy to establish or achievable with a little luck. Yet, I argue that the reactive nature of effectual decisions may not be sustainable in the long-run. Even entrepreneurs do not prefer to invest in planning activities, the environments they are being surrounded and especially innovations in the interpretation of big data; such as game analytics, orient entrepreneurs toward being more planned, predictive and pro-active in their decisions.

The repercussions of such remarks on entrepreneurship as an accessible domain, respectively low entry barriers in digital platforms, combined with an interest and background in gaming enlarge the pool of potential entrepreneurs in Turkey's socio-economic and cultural setting while providing favorable conditions for entrepreneurial activity. Yet, it must be underlined that capacity building and coping with uncertainty simultaneously bring up quite a big challenge. The obstacles regarding access to knowledge may result in a position where entrepreneurs may find themselves on their own. Therefore, being comfortable in the face of uncertainty and having sufficient patience and passion to continue their endeavors are necessary factors for entrepreneurs in the video game industry. Two of the biggest tools of overcoming uncertainty; is the availability of systematic access to new knowledge and systematic generation of the skilled workforce. Unfortunately, these tools are not well-established in Turkey. However, I have also observed that in Turkey, there is a developing interest and effort to compensate to improve such tools in the national innovation system for the video game industry at the public policy level. Therefore, a complete policy framework was proposed at micro-meso macro levels with two main goals; i) to increase the resources of entrepreneurs and ii) to create a favorable ecosystem to establish and sustain video game industry in Turkey.

8.2. Limitations and Further Research

This dissertation explored a nascent market for Turkey; which led many opportunities along with many challenges. So that, this study has some limitations and proposes directions for future research. Firstly, most of the participants of this study were composed of entrepreneurs who owned micro companies; therefore, a rich archival data of organizations was not present. The secondary sources of data were news in the media, web site information of participants' companies/teams and the interviews realized with the two directors of ATOM Pre-incubation center at the beginning and at the end of the study. Lack of archival data also contributed to the problem of triangulation.

Secondly, the micro and small size of the companies did not allow for making multiple interviews from the same company. The interview questions in this study covered the background of entrepreneurs' decisions before they joined the industry. So that, I have thought that only the founder of the company would be the ideal respondent. Future studies can be designed with multiple stakeholders and key informants. Moreover, there are handful of medium-large sized game companies in Turkey which can be suitable cases of their own if data access can be ensured. Further studies can be designed in multiple case study method with medium-large sized game companies. Which can enable multiple stakeholder analysis and researchers can access more archival data about the decision-making processes of entrepreneurs. Unpacking the decision-making approaches of entrepreneurs in medium-large companies may also contribute to the knowledge base of the video game industry. However, these studies should also consider that entrepreneurial activities may be less in corporate companies.

Thirdly, this study only covered Turkish entrepreneurs in the video game industry based in METU Technopark. Unfortunately, the limited budget and time available for this study did not allow for field research in other settings; which posited itself as a limitation for generalizability. This study should be extended with entrepreneurs in the video game industry who are based outside of a technopark ecosystem, different cities in Turkey, or in different countries. Then, findings of such studies can be compared in terms of how they take key decisions in their entrepreneurial journey and how they cope with crisis situations. In addition to these, further studies can also investigate whether there are different phases in the entrepreneurial journey of entrepreneurs in the video game industry in different settings.

Forthly, this study investigated the entrepreneurs' decision-making logic throughout their entrepreneurial journeys. However, the findings of this study will be more meaningful with a second round of research to see whether themes of decision-making changes in time. Therefore, longitudinal studies in the same context are suggested.

Fifthly, the entrepreneur profiles created in this study are not clear cut categories; therefore there are room for different categorizations in future studies. I have found

that some entrepreneurs attached more value to the artistic interest of their games than commercial values. I have observed that artistic passion had an impact on entrepreneurs' key decisions. Nonetheless, I kept my conclusions at a modest level about the role of passion and decision-making approaches, since there is a separate domain of research on this topic. A specific examination on the passion levels of entrepreneurs was not carried out due to the scope and focus of this dissertation. Further research can benefit from the existing literature which provides tools for measuring entrepreneurial passion (Vallerand et al., 2003) to elucidate whether or not changes in passion levels of entrepreneurs cause any convergence towards a particular decision-making approach.

Sixthly, the theoretical framework used in this study was at best, a moderately established theory; therefore, I have acknowledged that there is a room for further elaboration. Therefore, understanding effectuation in different industries, cultural settings, a different profile of entrepreneurs and different business model would be beneficial. Future studies will help to consider effectuation as an adaptive strategy or exploration strategy. Moreover, future studies can also utilize alternative methodologies to examine decision-making approaches of entrepreneurs. For instance, fuzzy-set qualitative comparative analysis can be done to establish causal links between decision-making approaches and institutional factors.

Seventhly, some scholars investigate the factors that led to become entrepreneurs and find no difference between nascent entrepreneurs and nonentrepreneurs with respect to their desire for "financial success, self-realization and independence" (Carter et al., 2003, p.33). I suspect that it might not be the case for the entrepreneurs in the video game industry. Some of the participants declared their desire for independence clearly. So, motivations of entrepreneurs in creative and cultural industries should be further explored. In addition to this, the number of women entrepreneurs were almost zero in the sector. Future studies should also consider role of gender in entrepreneurial intentions (Marlow & Patton, 2005; Brush et al., 2009; Shinnar et al., 2018).

Eightly, I believe that, the triggering factors outlined in this dissertation for each phase of the journey of entrepreneurs in the video game industry provides a practical baseline for future studies. For instance, researchers may select one phase and one or multiple triggering factors and examine the causal relationship between them. Thus, the knowledge about the dynamics of the video game industry could be enhanced. Besides, future studies can also utilize quantitative method to validate the relationship between several triggering factors and decision-making approaches.

Finally, future studies can also investigate the role of access of freelancers at the ecosystem in the entrepreneurs' networking and team formation decisions. Due to the fact that, freelancers have a considerable place in the video game industry. People may choose to freelance due to "not finding a permanent job at an established studio where they live" or "to have more control over working conditions like hours" (Weststar & Legault, 2016).

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APPENDICES

A. APPROVAL OF METU HUMAN SUBJECTS ETHICS COMMITTEE

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER



ORTA DOĞU TEKNİK ÜNİVERSİTESİ
MIDDLE EAST TECHNICAL UNIVERSITY

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F: +90 312 210 79 59
ueam@metu.edu.tr
www.ueam.metu.edu.tr

Sayı: 28620816 / 06

02 OCAK 2017

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Prof.Dr. Nazlı WASTI PAMUKSUZ;

Danışmanlığını yaptığınız doktora öğrencisi Cansu DURUKAN'ın "*Yaratıcı Sektörler ve Yenilik Süreci*" başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek gerekli onay 2016-SOS-179 protokol numarası ile 01.05.2017 – 30.11.2017 tarihleri arasında geçerli olmak üzere verilmiştir.

Bilgilerinize saygılarımla sunarım.

Prof. Dr. Canan SÜMER

İnsan Araştırmaları Etik Kurulu Başkanı

Prof. Dr. Mehmet UTKU

İAEK Üyesi

Prof. Dr. Ayhan SOL

İAEK Üyesi

Prof. Dr. Ayhan Gürbüz DEMİR (Y.)

İAEK Üyesi

Doç. Dr. Yaşar KONDAKÇI

İAEK Üyesi

Yrd. Doç. Dr. Pinar KAYGAN

İAEK Üyesi

Yrd. Doç. Dr. Emre SELÇUK

İAEK Üyesi

**B. EXTENSION OF APPROVAL OF METU HUMAN SUBJECTS
ETHICS COMMITTEE**

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER



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15 ARALIK 2017

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Prof. Dr. Nazlı Wasti PAMUKSUZ ;

Danışmanlığını yaptığınız doktora öğrencisi Cansu DURUKAN'ın “**Yaratıcı Sektörler ve Yenilik Süreci**” başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek gerekli onay **2017-EGT-189** protokol numarası ile **25.12.2017- 30.06.2018** tarihleri arasında geçerli olmak üzere verilmiştir.

Bilgilerinize saygılarımla sunarım.

Prof. Dr. Ş. Halil TURAN

Başkan V

Prof. Dr. Ayhan SOL

Üye

Prof. Dr. Ayhan Gürbüz DEMİR

Üye

Doç. Dr. Yaşar KONDAKCI

Üye

Doç. Dr. Zana ÇITAK

Üye

Yrd. Doç. Dr. Pinar KAYGAN

Üye

Yrd. Doç. Dr. Emre SELÇUK

Üye

C. PERMISSION FROM METU TECHNOPARK

ODTÜ-TEKNOKENT
"FuturMaker"

ODTÜ TEKNOKENT Yönetim A.Ş. İkizler Binası 06800 ODTÜ, Ankara - TÜRKİYE
T: +90.312.987 35 00 - F: +90.312.210 17 74 - odtuteknokent.com.tr

09.01.2017

ODTÜ-TEKNOKENT
"FuturMaker"

09/01/2017
GİDEN 00213325

Sayı: T05-090117-
Konu: İzin Yazısı Hk



Orta Doğu Teknik Üniversitesi
Bilim ve Teknoloji Politikası Çalışmaları Anabilim Dalı

Aşağıda bilgileri yer alan akademik program tez çalışması çerçevesinde, Cansu Durukan'ın ODTÜ TEKNOKENT ön kuluçka merkezimiz Animasyon Teknolojileri ve Oyun Geliştirme Merkezi (ATOM) geliştiricileri ve mezun şirketleri ile yüz yüze görüşme yapabilmesi için gerekli iletişim ve koordinasyon olanaklarını sağlayacağımızı bildiririz.

ODTÜ TEKNOKENT Yönetim A.Ş. ve ATOM Program Yönetimi ön kuluçka merkezi kullanım kuralları ve imkanlarını değiştirme, kaldırma, yenileme hakkını saklı tutar.

Okul: Orta Doğu Teknik Üniversitesi, Bilim ve Teknoloji Politikası Çalışmaları Anabilim Dalı
Program: Doktora
Tez başlığı: Creative Industries and Innovation Process
Danışman: Prof. Dr. Nazlı Wasti
Hedeflenen Başlama Tarihi: 5 Ocak 2017
Hedeflenen Bitiş Tarihi: 30 Kasım 2017

Saygılarımızla,


Hahzade Sarıççek
Genel Müdür Yrd.

D. TEXT FOR INVITATION TO PARTICIPATION TO THE RESEARCH

Merhaba Sn.
İsmim Cansu Durukan. ODTÜ-Bilim ve Teknoloji Politikası Çalışmaları Bölümünde doktora öğrencisiyim. ODTÜ İşletme Bölümü'nden Prof.Dr.Nazlı Wasti Pamuksuz danışmanlığındaki tezim kapsamında Ankara'da video oyun sektöründe yer alan girişimcileri konu alan bir çalışma yürütmekteyim. Bu sebeple size ulaşıyorum. Tezimin saha çalışması kapsamında yaklaşık 1 saat süren yüz yüze mülakatlar yapıyorum. Mülakatta katılımcılardan şirket kurma fikrinin ortaya çıkmasından, şirketlerinin bugüne gelene kadarki dönemde geçirdiği önemli evreler ve bu süreçte şirketin büyümesine yardımcı olan firma dışı ilişkiler ile ilgili soruları yanıtlamaları beklenmektedir. Gönüllülük ilkesine dayanan görüşmelerimiz süresince katılımcılar tarafından verilen bilgiler yalnızca araştırmacılar tarafından bilimsel çalışmalarda kullanılacak olup, çalışmanın ilerleyen aşamalarında topluca analiz edilmek üzere ses kaydı alınmaktadır.

Değerli tecrübelerinizin araştırmamda yer almasını çok isterim. Bu sebeple gg/aa/yyyy tarihinde sizleri ziyaret etmek ve yüz yüze görüşmek istiyorum. Çalışma ile ilgili daha detaylı bilgi almak isterseniz cdurukan@metu.edu.tr adresinden bana ulaşabilirsiniz. Şimdiden yardımlarınız ve zamanınız için teşekkür ederim. Saygılarımla,

Cansu Durukan,

Araştırma Görevlisi ve Doktora Adayı

Bilim ve Teknoloji Politikası Çalışmaları Bölümü

Orta Doğu Teknik Üniversitesi

Merkez Mühendislik Binası 3. Kat, Ofis No:320,

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E. INTERVIEW GUIDELINE

Çalışmaya Dair Bilgi:

Bu çalışma firmaların oluşmasında ve büyümesinde firma dışı ilişkilerin rolünü araştırmaktadır. Bu bağlamda ODTÜ-ATOM Kuluçka Merkezi, ODTÜ Teknokent ve Ankara’da bulunan video oyun şirketlerinin kurucuları veya üst düzey karar alıcıları ile görüşülecektir. Yarı yapılandırılmış mülakatlar şeklinde ve yüz yüze yapılacak saha çalışmasında, katılımcılardan başlıca iki konu özelinde cevap alınmaya çalışılacaktır. Birincisi, katılımcılardan şirket tarihçesini kısaca anlatmaları istenmektedir. Şirket kurma fikrinin oluştuğu günden bugüne kadar geline zamanında, şirket kurucularının ya da yöneticilerinin dönüm noktası olarak adlandırdıkları başarıları, başarısızlıkları, kararları ve olayları belirlemeleri istenmektedir. İkincisi, şirketi kurma ve büyütme süreci içinde şirket için faydalı olduğunu düşündükleri ve zararlı/zorlayıcı olduğunu düşündükleri ilişkileri belirtmeleri istenmektedir. Çalışmanın odağını video oyun sektöründeki girişimciler ve girişimcilerin kurduğu önemli ilişkiler, bu ilişkilerin türleri, işlevleri ve gelişimleri oluşturmaktadır. Görüşmeler süresince çalışmanın izleyen aşamalarında analiz edilmek üzere ses kaydı alınacaktır. Mülakat soruları aşağıdaki gibidir.

Bölüm 1: Tanışma ve Arkaplan Soruları

- 1) Kendinizden kısaca bahsedebilmisiniz?
 - a. Yaş
 - b. Cinsiyet
 - c. Eğitim geçmişi
 - d. İçinde bulunduğunuz ekipteki rolünüz nedir?
 - e. Bu ekibe ne zaman katıldınız?
- 2) Hangi tür mal/hizmet sunuyorsunuz?
 - a. Mobil oyun
 - b. Tarayıcı oyunu
 - c. Konsol oyun

- d. Diğer. Lütfen belirtiniz.
- 3) ATOM'a/ Teknopark'a ne zaman katıldınız? Şirketiniz nerede kuruldu? Baştan beri buradamıydınız? Buraya başka bir yerden mi taşındınız?
- a. Neden Teknopark'a/ ATOM'a katılmaya karar verdiniz?
- b. Sizin için ATOM'da olmanın avantajları nelerdir?
- c. Eğer ATOM gibi bir merkez olmasaydı, yine de bu işi kurarmıydınız?

Bölüm 2: Şirket Tarihiyle İlgili Sorular

- 4) Geçmişe gidecek olursak, şirketin kuruluşu ve kuluçka merkezine katılımınızın arkasındaki süreçten, biraz bahsedermisiniz?
- a. Şirketin kurulmasındaki temel isteğiniz neydi?
- b. Şirketin kurulmasında bağlı kalmaya karar verdiğiniz ilkeler nelerdi?
- 5) İlk fikir ortaya atıldıktan, şirketiniz bu günkü durumuna gelene kadarki geçen zaman arasında şirketinizin geçirdiği en kritik, en önemli ve tetikleyici aşamalar nelerdi? Bunu dönüm noktalarını zaman doğrusu üzerinde gösterebilirmisiniz?

Fikir aşaması	Mevcut durum	Şirket Kurma

Not: Zaman doğrusundaki aşamaları mülakat yapılan kişinin belirlemesi istenecektir.

- a. Şirketinizin gidişatında, gelişiminde bir değişikliğe sebep olduğunu düşündüğünüz **beklenmedik** olay veya durumlar ile karşılaştınız mı? Karşılaştıysanız bunları da zaman çizgisi üzerinde gösterir misiniz?
- b. Şirketteki rolünüz/rolleriniz düşünüldüğünde, sizin en çok zorlayan konu nedir? Neydi? Bu bir olay olabilir, bir ilişki olabilir, teknik bir konu olabilir..

c. Şirketinizin başarısız olduğunu gerçekten düşündüğünüz, hissettiğiniz, eyvah şirket batıyor diye düşündüğünüz bir an/ süreç oldu mu? Biraz anlatır mısınız? Bu durumu nasıl aştınız?

6) Şirketinizi kurarken, neleri başarmak istediğinize dair aklınızda net bir plan/strateji var mıydı? Var idiyse, bunlar nelerdi?

a. Eğer yoksa, iş modeliniz nasıl ortaya çıktı? Şans eseri mi, zamanla evrimleşen bir şekilde mi?

7) Eskiye gidecek olursak, teknopark bağlamında şirketinizin hayatta kalması ve büyümesinde önemli rolü olan ilişkileriniz nelerdi? Kimlerle idi? (örneğin kuluçka merkezindeki diğer girişimciler, mezunlar, destek kuruluşları, teknopark yöneticileri ve destek ekibi, yerel/uluslararası müşteriler, aile bireyleri, önceden tanıdığınız meslektaşlarınız ve arkadaşlarınız gibi)

a. Şirkete önemli birinin alınması veya önemli bir çalışanın ayrılması gibi biro lay yaşandı mı?

8) İhtiyacınız olan belli kaynaklara ve yeteneklere ulaşmak için bu kişilerin hangisiyle çalışacağınıza dair bir stratejiniz/planınız var mıydı?

a. Evet ise, bu bağlantılar nelerdi? Seçiminizdeki temel kriter neydi?

b. Net bir planınız mı vardı? Örneğin önceden kiminle kontak kuracağınızı ve birlikte çalışacağınızı bu işi kurmadan önce biliyormuydunuz?

9) Hayır ise, bu ilişkiler nasıl gelişti? Şans eseri veya tesadüfen gelişen bir olay sonucunda mı? Bu ilişkilerin arkasındaki hikaye neydi?

a. Birlikte çalışma potansiyelinizin olduğu insanların ODTÜ ile bağlantılı olması “ODTÜ insanı” olması (mezun-çalışan-öğrenci vb) sizin için önemli midir?

10) Bu aşamada mülakat yapılan kişinin önemli olduğunu belirttiğini ilişkilere dair bir tablo hazırlanacaktır. Bu tablolarda her bir ilişkinin doğası ve nasıl geliştiğiyle ilgili bilgiler toplanarak gruplandırılacaktır. En önemli ilişkiler tespit edildikten sonra, her bir ilişkiye odaklanarak 3. Bölümdeki sorular sorulacaktır.

Bölüm 3: İlişkilerin Gelişimi ile İlgili Sorular

- 11) Bahsettiğiniz önemli ilişkileri tek tek ele alacak olursak, bu ilişkilerin gelişme sürecinden biraz bahsedermisiniz?
- 12) İlk kim size yaklaştı? Veya siz mi onlara yaklaştınız? Nerede tanıştınız? Kişisel olarak tanıştınız mı? Yüzyüze tanıştınız mı? Ne zaman tanıştınız?
- 13) İlişkiniz zaman içinde nasıl gelişti?
- 14) Bu ilişkinin doğası sizce nedir? İş ilişkisi/ Sosyal ilişki/ Her ikisi de? Bu ilişkiyi nasıl tanımlarsınız?
- 15) Bahsettiğiniz ilişkinin öne çıkan fonksiyonu/ faydası nedir? (yeni fikirler, yeni yenilikçi ürün ve hizmetler, tüketici ihtiyaçlarını karşılamak için yeni yollar, yeni pazarlara girmek, yeni pazarlar açmak, yeni teknoloji alanlarına girmek, varolan ürün kalitesini iyileştirmek, üretim esnekliği, varolan müşteri tabakalarına nüfuz etmek vb. gibi)
- 16) Yönetmesi zor diyebileceğiniz bir ilişkiye örnek verebilirmisiniz? Bu gibi zorlu ilişkilerin ne tip maliyetleri olmaktadır? Ne tür zararlara sebep olmaktadır? Sizin böyle zorlu bir ilişki vakanız oldu mu? Şirket kapsamında belirlediğiniz önemli kişiler arasından (mentor/yatırımcı/iş ortağı vb) hayal kırıklığına uğradığınız bir ilişkiniz oldu mu? Olduysa kiminle? Kısaca anlatabilirmisiniz?
- 17) Sizin bakış açınıza göre, bu ilişkileri yönetmesi zor hale getiren sebepler nelerdir?

Bölüm 4: Özetleyici Sorular (İlişkilerin tipolojileri ortaya çıktıktan sonra sorulacak sorular)

- 18) Bahsettiğiniz ilişki ile etkileşiminiz hangi sıklıkta olmaktadır? (Lütfen her bir ilişki grubu için cevaplayınız).
- 19) Farklı ilişkileri deneyip bir veya birkaçını seçip, diğerlerini bitirdiğiniz durumlar oldu mu? (Lütfen örnek veriniz)
- 20) Zaman ve çabanızın ne kadarını bu ilişkileri kurmak ve devam ettirmek için harcıyorsunuz? (Harcanan zaman ve çaba makul bir kayıp mı yaratıyor/ harcanan zaman ve çaba yüksek ama beklenen karşılık mı yüksek?)

21) Eđer size zaman ve para anlamında bir maliyet yaratmayacak olsalar, önemli ilişkileriniz arasından değıştirmek istediđiniz kişiler olur muydu? Byle bir fırsatınız olsa değerdendirir miydiniz? Kimler iin bunu yapardınız? Sebebinden kısaca bahseder misiniz?

22) Networking yaklaşımınız zaman iinde nasıl değışti?

23) Bahsettiđiniz ilişkilerden herhangi birisi başlangıtaki iş fikrinizi değıştirmenizde veya netleřtirilmesinde yardımcı oldu mu? Eđer olduysa neden?

24) Bu ilişkilerden herhangi birisi işlerinize ve řirketin büyümesine engel oldu mu? Eđer olduysa neden?

25) Ařađıda gösterilen iç içe geçirilmiş daireler üzerinde size en yakın olan ilişkinin en içteki daireye yakın olan halka olduğunu düşünürsek, söz konusu ilişkilerin konumunu gösterebilirmisiniz? (En yakın, en güçlü, en uzak en zayıf ilişkiyi temsil etmektedir).

DAİRE ÇİZDİRME ÇALIřMASI

Not: Çalışmanın son aşamasında katılımcılardan, mülakat boyunca bahsedilen ilişkileri ařađıdaki řekil üzerinde göstermeleri istenecektir.

F. SUMMARY TABLE FOR DECISION-MAKING APPROACHES OF FOUR ENTREPRENEUR PROFILES

Table F1.

Experienced Entrepreneurs								
10	C	E	C	C	C	C	C	C
22	E	E	B	C	C	C	C	C

Table F2.

Professional/Idealists								
2	E	E	E	E	E	E	C	C
5	E	E	E	E	E	E	E	E
6	E	E	E	NA	E	E	NA	E
17	C	E	C	C	C	C	E	C
18	E	E	C	C	C	E	C	E

Table F3.

Job Quitters								
1	E	E	E	E	E	E	C	E
3	E	E	C	C	E	E	C	C
9	C	E	C	E	C	E	C	E
11	E	E	E	E	E	C	C	B
15	E	E	E	C	C	B	C	C
20	C	E	E	E	C	C	NA	C
21	C	E	B	E	E	C	C	C

Table F4.

Student Entrepreneurs								
4	E	E	E	E	E	E	C	C
7	E	E	E	E	E	E	NA	E
8	E	C	E	C	C	C	C	C
12	E	E	E	E	E	E	NA	E
13	C	E	B	E	C	E	C	C
14	E	E	E	C	E	E	NA	E
16	E	C	E	NA	C	E	NA	C
19	E	E	C	C	B	C	E	B

G. CODING MANUAL FOR EXTERNAL CODER

1. In this study two decision-making types; effectuation and causation are differentiated in five dimensions. Effectuation simply suggests that actors take their decisions based on the means they have (*their identity, network and knowledge; by asking Who am I, What I Know and Whom I know questions*). In effectuation *goals are defined as a result* of this evaluative process on resources they have. Causation on the other hand is a goal-driven approach on decision-making. In causation actors start with a goal in mind (*goals are defined ex-ante*) and channel their resources accordingly with their goals.
2. Please, take your time to familiarize yourself with the two decision-making approaches and dimensions by reading the code descriptions below before starting to code. If you have any hesitation about these concepts please contact me from cansudurukan@gmail.com
3. When reading the interview excerpts please first try to understand which dimension participant is talking about.
4. Read the code descriptions carefully to decide on the **DM Principle**. There is a corresponding principle for the two **DM Type** for each dimension. For instance, in terms of the basis of participant's action (one of the dimensions), the coder must go to the *basis of action* dimension first. Then, the coder should choose among goal-driven or means-driven principles by considering the code descriptions. Then, the coder should choose the **DM Type** that contains the identified principle (for instance, if the means-driven principle is coded; then the DM Type would be Effectuation). The coder can also start with **DM Type** first and code the corresponding **DM principle** followingly, if he/she considers more suitable/comfortable.
5. The coder is expected to enter data on **DM Type** and **DM Principle** in columns.
6. The coder has three options for **DM Type**; Effectuation, Causation or Both.
7. More than one **DM principle** can be coded, if the coder thinks that it is necessary.

8. Please, take note of the excerpts which you think as not clear or need more background information.
9. Please, try to assign a **DM Type** and **DM Principle** for each excerpt as much as you can. In cases of hesitation, please choose the nearest possible code. In several cases participants may mention a particular **DM Type**, yet their decided action may not reflect the abovementioned DM Type. **In such cases, please consider the action itself.**
10. In some cases, participants can mention their decision-making approach in the past and their current approach. For such cases, **please, consider the most recent approach** while coding the **DM Principles** and **DM Type**.
11. Please leave the agree/disagree column in the excerpts table empty.
12. Thank you for your time and interest.

Table G1.

Participant ID	Excerpts	Decision-Making Type	Decision-Making Principle	Agree/Disagree

H. CURRICULUM VITAE

PERSONAL AND CONTACT INFORMATION

CANSU DURUKAN

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EMPLOYMENT

Research Assistant, Research Centre for Science and Technology Policies, Middle East Technical University, November 2010 – October 2017

EDUCATION

Ph.D. Science and Technology Policy Studies, Graduate School of Social Sciences, Middle East Technical University, Ankara, 2011- Expected graduation date: May 2019

Dissertation Title: *“Entrepreneurial Decision Making in Video Game Industry: A Study Based on Effectual and Causal Approaches*

Advisor: Prof. Dr. Syeda Nazlı Wasti Pamuksuz

MSc. Science and Technology Policy Studies, Graduate School of Social Sciences, Middle East Technical University, Ankara, 2009 - 2011

Term Project Title: *“Jobless Growth Experience and Technology Policies in Turkey.”*

Advisor: Prof. Dr. Erkan Erdil

BSc. Economics, Faculty of Economic and Administrative Sciences, Baskent University, Ankara, 2004 - 2008

RESEARCH INTERESTS

STI policy, entrepreneurship and innovation, entrepreneurial decision making, non-predictive decision-making models, creative industries entrepreneurship, digitalization of work, industrial clusters, organizational learning, capability building, evolutionary economics, qualitative and mixed methods in interdisciplinary studies

PUBLICATIONS

- Evsel, G., **Durukan, C.** and Coşkun, M. (2018), “*Draft Study on Design of the Interface Structures in Turkey by Studying Best Cases from International Practices: Fraunhofer and DFKI (German Research Center for Artificial Intelligence)*”, prepared by Technology Development Foundation of Turkey (TTGV), Coordinated by Kiper, M. and Karataylı, İ. Under the scope of Total Factor Productivity Project, Funded by European Union and the Republic of Turkey
Available at <http://tfvp.org/wp-content/uploads/2018/10/Design-of-the-Interface-Structures-in-Turkey-Fraunhofer-DFKI.pdf>
- Yalçın, U.G., **Durukan, C.** Ertan, A. (2014), “**Legal Framework for Intangible Assets in Turkey**” TEKPOL Working Paper Series, STPS-WP-13/05
Available at <http://stps.metu.edu.tr/working-papers>
- Erden, Y., **Durukan, C.**, Ertan, A. and Doğan, M. (Eds.), (2014), “**Ulusal İnovasyon Girişimi 2006- 2013 Dönemi Değerlendirme Raporu**” TÜSİAD-Sabancı Üniversitesi Rekabet Forumu (English: *National Innovation Initiation 2006-2013 Era Evaluation Report, prepared for Turkish Industry and Business Association-Sabancı University Competitiveness Forum*)
- Erdil, E., Pamukçu, M.T. and **Durukan, C.** (2012), Savunma Sanayinde Bir Kümelenme Örneği: Ankara Kazan Savunma ve Havacılık Kümelenme Girişimi”, Savunma Sanayi Gündemi, 19, December, 11-14 (English: *A Cluster Case in Defence Industry: Ankara Kazan Area Defence and Aeronautical Clustering Venture*)
- **Durukan, C.** and Pamukçu, M.T, (2011) “**Global Production Networks and Knowledge Transfer Mechanisms**” International Journal of e-business and e-government Studies, Vol 3, No 1, 2011 ISSN: 2146-0744 (Online)

WORKING PAPERS& CONFERENCES

- **Durukan, C.** (2018), “*Dünyada ve Türkiye’de Sanal Gerçeklik ve Artırılmış Gerçeklik Teknolojisi: Dijital Oyun Sektörü Üzerinde Bir İnceleme*”, (English: *Augmented and Virtual Reality Technology in World and in Turkey: An Examination on Digital Game Industry*) Poster Presentation, STS TURKEY (Toplum için Bilim ve Teknoloji Çalışmaları Konferansı), 10-11th September, Ankara, Turkey
- **Durukan, C., Narooz, R., and Wasti Pamuksuz, N.** (2018), “*Entrepreneurial adaptation in the video game industry: A case of game developers in a Turkish university techno park*” 32nd Annual BAM (British Academy of Management) Conference, 4-6th September 2018, Bristol, England
- **Durukan, C., Narooz, R., and Wasti Pamuksuz, N.** (2017), “*A Conceptual Framework for Effectuation in Video Game Industry*” 40th ISBE (Institute for Small Business and Entrepreneurship) Conference, 8-9th November, Belfast, Northern Ireland
- **Durukan, C.** (2017), “*Competition Dynamics in Video Game Industry: What are the Challenges and Opportunities for Turkey?*” 2nd International Conference on Economics Business Management and Social Sciences, May, 10-14, 2017, Belgrade, Serbia
- Member of Organisation Team, 11th Globelics International Conference, September 11- 13 2013, Ankara

RESEARCH EXPERIENCE

- **Research Assistant**, “*The Future of EU-Turkey Relations. Mapping Dynamics and Testing Scenarios*” (FEUTURE). Project funded by European Council under HORIZON 2020, 2015- 2018
- **Researcher**, “*The Sharing Knowledge Assets: Interregionally Cohesive Neighborhoods (SEARCH)*”, project financed by the European Union under the Seventh Framework Programme for Research and Technological Development in the ‘Socio-economic sciences and the humanities’ area (FP7-SSH-SSH-2010.2.2.1-266834), March 2010–March 2014
- **Researcher**, “*Ankara’daki Kreatif Sektör Kümelenme Analizi*” (BAP No: 07-03-2013-017), METU Presidency, 2013

- **Researcher**, “*Kazan Defense and Aeronautical Cluster*”, Report Prepared for Under secretariat for Defense Industries, 2012
- **Researcher**, “*Strategic analysis of the innovation capacity of the ICT sector in Ankara*”, Report prepared for Ankara Development Agency, 2011

AWARDS

- BAM (British Academy of Management) ***Best Developmental Paper Award***, September, 2018, Bristol/ England
- ICEBSS (International Conference on Economics, Business Management and Social Sciences), ***Young Researcher of the year Award***, May 2017, Belgrade, Serbia
- Baskent University, Highest Achievement List of the Department, ***Honor Student Certificate***, Fall Semester in 2007-2008 Academic Year, Ankara, Turkey
- Baskent University, Highest Achievement List of the Department, ***Honor Student Certificate***, Spring Semester in 2007-2008 Academic Year, Ankara, Turkey

PROFESSIONAL TRAININGS

- Middle East Technical University Continuing Education Center, “***Qualitative Data Analysis and Visualization in Social Sciences Research- MAXQDA Software***”, Certificate of Participation, Ankara, 2018
- Trans European Policy Studies Association, ***PONT Career Skills Training***, Co-funded by the Erasmus+ Program of the European Union, Certificate of Completion, Brussels, 2016

INTERNSHIPS

- Republic of Turkey Prime Ministry Under secretariat of Treasury, Information Program for University Students Attendance Certificate, Ankara, February 2008
- Central Bank of the Turkey Republic, Markets Department, Ankara, July 2007

LANGUAGES

- Turkish: Native, English: Full Professional Proficiency
- Spanish: Beginner,
- French: Beginner

INTERESTS

- Caring for animals, fitness, travelling, playing acoustic guitar, cooking, reading on human psychology

I. TURKISH SUMMARY/ TRKE ZET

Giriř ve Arkaplan

Giriřimciler var olan bilgiyi ekonomik aıdan anlamlı olan bilgiye dnřtrerek ekonomik bymeye katkı saęlayan aktrlerdir (Braunerhjelm, Acs, Audretsch & Carlsson, 2010). Bilgi ve İletiřim Teknolojilerindeki geliřmeler, daha nce mekanlarda, kltrlerde ve bireylerde rtk halde bulunan bilgiyi byk lde aık hale getirmiř ve eriřimini yaygınlařtırmıřtır. Ancak bu durum, bilgi bombardımanını da beraberinde getirmekte; sz konusu bilgi bombardımanı ise karmařıklıęın bir bileřeni haline gelmekte ve karar alma srelerinde bir engel teřkil etmektedir (Simon, 1997). yle ki, aęımızda kıt kaynaęın bilgi deęil, dikkat olduęu zerinde durulmaktadır (Simon, 1997). Ynetim biliminin nde gelen isimlerinin de bu konuya eęilmesi, sz konusu olgunun nemini destekler niteliktedir. Karar alma srelerinde bilginin nasıl dzene koyulacaęı, amaların nasıl nceliklendirileceęi ve karar alma srelerinin nasıl basit hale getirileceęi gibi konulardaki tartıřmalar (Sull & Eisenhardt, 2015) giriřimcilerin karmařık ve belirsiz durumlarda karar alma srelerindeki sezgisel yaklařımlarının arařtırılmasına olan ilgiyi artırmaktadır (Busenitz & Barney, 1997; Baron, 1998).

Giriřimcilerin stratejik kararları ile firma performansı arasındaki iliřki birok kiři tarafından arařtırılmıřtır (Dess, Lumpkin & Covin, 1997; Baum & Wally, 2003; Kunch & Morecroft, 2010). Dahası, giriřimcilerin grnnrde ilintisiz olan bilgiyi, yeni rn ve hizmet retmesi, giriřimlerinin hayatta kalması ve bymesi amacıyla nasıl birleřtirdięini anlamak zere ayrı bir yazın olan giriřimsel kavrama yazını ortaya ıkmıřtır (Mitchell, Busenitz, Lant, McDougall, Morse & Smith, 2002).

Stratejik karar alma ve giriřimsel kavrama alanında var olan yazın arasında, gerekleřtirme teorisi (Sarasvathy, 2001) son yıllarda bu alandaki arařtırmacıların ilgisini ekmekte ve bu teori, giriřimlerin yaratımı sreci (Dew, Read, Sarasvathy & Wiltbank, 2009b; Chandler, DeTienne, McKelvie & Mumford, 2011; Reymen, Andries, Berends, Mauer, Stephan & Van Burg, 2015), uluslararasılařma sreci

(Kalinic, Sarasvathy & Forza, 2014; Chetty, Ojala & Leppäaho, 2015), uluslararası firmalarda girişim yaratımı süreci (Harms & Schiele, 2012), kuruldukları anda küresel çapta faaliyet gösteren firmalarda (Andersson, 2011), ürün yeniliği süreci (Berends, Jelinek, Reymen & Stultiëns, 2014), ve araştırma geliştirme süreçleri özelinde incelenmiştir (Brettel, Mauer, Engelen & Küpper, 2012).

Gerçekleştirme teorisi araçlara dayalı bir karar alma kuramıdır; öyle ki, girişimcilerin kararlarını amaçlarına göre değil, araçlarını temel alarak aldıklarını savunur (Sarasvathy, 2001). Bu yaklaşımda bahsedilen araçlar; girişimcinin kimliği, bilgi birikimi ve ağlarıdır. Bu yaklaşıma göre girişimciler, “Ben kimim, Ne biliyorum, Kimleri tanıyorum” soruları ile başlarlar ve süreç içerisinde belli karar alma kriterlerine göre hareket ederler (Sarasvath, 2001; Sarasvathy, 2008). Bu yaklaşımda, kararların araçlardan amaçlara doğru giden yönü, belirsizliğin varlığıyla ve geleceği önceden bilmenin zorluğuyla meşrulaştırılmaktadır. Kararların temelini oluşturan unsurun araçlar olması nedeniyle, gerçekleştirme yaklaşımı, amaç odaklı bir yaklaşım olan nedensel yaklaşımın zıttı kabul edilmektedir (Sarasvathy, 2001); zira gerçekleştirme yaklaşımında amaçlar, pazar geri bildirimleri ve paydaşlarla etkileşimi kapsayan dinamik bir süreç sonucu oluşur (Kalinic vd., 2014).

Gerçekleştirme kuramı, girişimcilere belirsizlik karşısında riskleri, kaynakları, potansiyel işbirliklerini, beklenmedik koşulları ve geleceği nasıl değerlendirebileceklerine dair bir yol haritasını sunmaktadır. Bu şekilde, yüksek belirsizliğin olduğu durum ve çevrelerde girişimcilik faaliyetleri daha az göz korkutucu hale gelmektedir (Sarasvathy, 2001; Sarasvathy, 2008).

Gerçekleştirme yaklaşımı bu çalışmanın temel kuramsal çerçevesini oluşturmaktadır. Video oyun sektörünün gerçekleştirme yaklaşımında tasvir edilen yüksek belirsizlik, hızlı değişim ve girişimci amaçlarının muğlaklığı bakımından, söz konusu yaklaşımı incelemek için uygun bir bağlam sağladığı düşünülmüştür. Video oyun endüstrisi yaratıcı endüstrilerin bir bileşeni olarak kabul edilmektedir. Birleşik Krallık Kültür Dijital Medya ve Spor bakanlığı tarafından ortaya atılan Yaratıcı endüstriler tanımı, üretimin merkezinde yaratıcılık bulunan endüstrileri tanımlayan bir şemsiye

kavramdır (DCMS, 1996). Yaratıcı endüstriler; reklamcılık, antika, zanaat, tasarım, moda, film, serbest zaman yazılımı, müzik, performans sanatları, yayıncılık, yazılım ile radio ve televizyon sektörlerini kapsamaktadır. 1990’lardan bu yana, yaratıcı endüstrilerin istihdam ve katma değere katkısı artış eğilimi göstermektedir.

Son on yılda, yaratıcı faaliyetlerin ekonomik değer yaratma gücü artan bir görünürlük kazanmıştır (DCMS, 2001; DCMS 2016; UNCTAD 2015; Van der Pol, 2007). Dönüşen küresel ortamda, kültürel ve yaratıcı endüstrilerin yaratıcılık ve yenilik yoluyla sosyo-ekonomik kalkınmaya katkı sağlama potansiyelinde olduğu düşünülmektedir (Avrupa Komisyonu, 2010), zira yaratıcılık, toplumu yeni denge noktasına çeker (Moran, 2010). Yaratıcı endüstriler yenilik sisteminin ve ekonomik büyüme ve kalkınmaya yönelik genel kuramların bir parçası olarak görülmektedir (Potts, 2009).

Avrupa Birliği ülkelerinde, 12 milyon kişi yaratıcı endüstrilerde istihdam edilmekte, bu rakam toplam istihdamın %7,5’ine karşılık gelmekte ve yaratıcı endüstriler toplam katma değerın %5,3’ünü oluşturmaktadır (Austrian Institute for SME Research and VVA Europe, 2016). Birleşik Krallık’ta, yazılım, bilgisayar oyunları ve elektronik yayıncılık sektörünün ekonomiye katkısı 1997-2005 yılları arasında 9800 milyon sterlinden 24.700 milyon sterline yükselmiştir (DCMS, 2016). Birleşik Krallık’ta 2012-2014 yılları arasında bilgisayar oyunları endüstrisinde istihdam 15000’den 24000’e; gayrisafi katma değer ise 156 milyon sterlinden 426 milyon sterline yükselmiştir (DCMS, 2016). Bu yıllar arasında tüm yaratıcı endüstrilerin gayri safi katma değere katkısı ortalama %6 artarken, yazılım, bilgisayar oyunu ve elektronik yayıncılık sektörü özelinde bu oran %10 olarak belirlenmiştir (DCMS, 2007).

Benzer bir yükseliş Türkiye’de de gözlenmektedir. Türkiye’de 2017 yılında, bir önceki yıla göre yaşanan %40 artış ile yerli oyun geliştiricilerinin yapmış olduğu oyunlardan 700 milyon dolarlık ihracat geliri elde edilmiştir (Gaming in Turkey, 2017). Türkiye’de 30 milyonu aşkın aktif oyuncu bulunmaktadır ve nüfusun %70-75’i akıllı telefon kullanmaktadır (Gaming in Turkey, 2017). Türkiye’de toplam oyun hasılatının çoğunluğunu PC/Konsol oyunlarından elde edilen gelir oluşturmakta, ancak mobil

oyunlardan elde edilen hasılatın bir önceki yıla göre PC/Konsol'a nazaran daha fazla arttığı, yani Türkiye'de mobil oyun pazarının genişlediği görülmektedir (Gaming in Turkey, 2017). Türkiye, oyundan elde edilen gelirler bakımından dünya sıralamasında 18. sırada, Ortadoğu ülkeleri arasında ise birinci sırada yer almaktadır (Gaming in Turkey, 2017).

Öte yandan, video oyun endüstrisindeki girişimciler çeşitli zorluklarla karşı karşıyadır. Bu zorlukların başında ise, yaratıcı endüstrilerde sıklıkla karşılaşıldığı gibi, ürünlere olan talebin belirsizliği gelmektedir (Caves, 2000). Zira, oyunlar çoğunlukla tüketicinin bir ihtiyacına yönelik olmaktan çok, eğlence ihtiyacını karşılamaya yöneliktir. Bunun dışında, girişimcilerin girişimlerinin hayatta kalması için birden çok bilgi altyapısını birleştirmeleri gerekliliği (Camerani, Masucci ve Sapsed, 2015), yaratıcı işgücünü yönetmek için farklı bir liderlik yaklaşımı geliştirme gerekliliği (Mumford, Scott, Gaddis & Strange, 2002), girişimcilerin ticari hedefleri ile yaratıcılık bakımından hedeflerini dengeleyebilecek becerilere sahip olmaları (Tschang, 2007), pazar geri bildirimindeki güvenilirlik problemi ile başa çıkabilmeleri (Chatfield, 2011) ve endüstrinin hızlı değişim temposu altında üretim yapmak durumunda olmaları (Cadin & Guérin, 2006) başlıca zorluklar olarak görülmektedir. Bu zorluklar, bilginin girişimlerin performansında ve yenilikçiliğinde oynadığı anahtar rol ile birleştiğinde, girişimcileri stratejik kararlar almaları gerektiğinde tahmin edilemez bir ortamla başbaşa bırakmaktadır. Bu sebeple, bu çalışmada gerçekleştirme teorisinin, video oyun sektöründeki girişimcilerin karar alma yaklaşımlarını incelemede uygun bir bağlam sağlayabileceği düşünülmüştür.

Yaratıcı endüstrilerin yükselen ekonomik performansı ve ekonomiye katkısına rağmen, bu alandaki akademik yazında özellikle uygulamalı çalışmalardaki eksiklik göze çarpmaktadır (O'Connor, 2009). Genel olarak yaratıcı endüstrilere dair var olan göstergeler istihdamdan, gayri safi milli hasıladaki paylarından ve ithalat-ihracat rakamlarından oluşmaktadır (UNCTAD, 2015). Benzer bir durum video oyun sektörü özelinde Türkiye için de geçerlidir. Sektöre dair erişilebilir bilginin kısıtlılığının yanı sıra, sektöre dair akademik çalışmaların oldukça az oluşu ve araştırılan konunun (girişimcilerin karar-alma yaklaşımları) ilk elden veri toplamayı ve bire bir etkileşimi

gerektirmesi nedeniyle bu çalışmada, temel araştırma yöntemi olarak niteliksel yöntem benimsenmiştir. Bu sebeple, çalışmada yarı-yapılandırılmış mülakat tekniği kullanılmış ve elde edilen bulgular ikincil veri kaynakları ile desteklendirilmiştir. Çalışmadan çıkan bulgular temellendirilmiş kuram yöntemi ile yorumlanmıştır.

Bu çalışmanın örneklemini ODTÜ Teknokent'te bulunan, video oyun endüstrisinde faaliyet gösteren ve sektörde en az bir yıllık deneyimi olan 22 girişimci oluşturmaktadır. Çalışmanın analiz unsuru firma değil, girişimcidir. Çalışmada aşağıda belirtilen üç soruya cevap aranmaktadır.

1. ODTÜ Teknokent'te yerleşik ve video oyun sektöründe faaliyet gösteren girişimcilerin girişimcilik serüvenleri boyunca geçtiği temel aşamalar nelerdir?
2. Girişimcilerin bu aşamalarda aldıkları kararlar ne ölçüde Sarasvathy'nin gerçekleştirme kuramı ile açıklanabilir?
3. Eğer varsa, girişimcileri girişimcilik serüvenleri kapsamında karar alma yaklaşımlarında değişime iten sebepler nelerdir?

Çalışmada karar alma sürecinin, girişimcinin kaynaklarına bağlı olduğu kadar girişimcinin ait olduğu çevredeki faktörler tarafından da belirlendiği düşünülmüş, bu sebeple karar alma süreçleri dışsal faktörlerle içsel kaynaklar arasındaki dinamik bir süreç olarak tanımlanmıştır. Çalışmanın örneklemini oluşturan 22 katılımcının 18'inin geçmişte veya halen Animasyon Teknolojileri ve Oyun Geliştirme (ATOM) önkuluçka merkezi ile bir bağlantısı bulunmaktadır. Dolayısıyla, ATOM, büyük ölçüde bu tezin bağlamını oluşturmaktadır. Bu çalışma kapsamında ATOM, sunduğu altyapı, eğitim programları, yarattığı ekosistem ve verdiği hizmetler bakımından girişimciler için belirsizliği azaltıcı ve öğrenmeyi hızlandırıcı bir ortam olarak kabul edilmiştir.

Bu çalışma elektronik ortamlarda üretilen, pazarlanan ve oynanılan oyunları kapsamaktadır. Yani, masa oyunları ve kart oyunları gibi oyunlar çalışmanın ilgisi dışında kalmaktadır. Çalışmada, video oyun terimi yerine elektronik oyun sektörü

veya dijital oyun sektörü ifadelerini kullanmak da mümkündür. Video oyun teriminin kullanılması birkaç sebeple tercih edilmiştir. Bunların başında; akademik yazındaki tartışmaların daha çok bu başlıkta bulunması, yaratıcı endüstriler kapsamında sektörün video oyun sektörü olarak anılması, Uluslararası Oyun Geliştiriciler Birliği ve Birleşik Krallık Medya, Kültür ve Spor Bakanlığı gibi bu alanda uluslararası anlamda öncü sayılan kurumların video oyun terimini kullanması, politika metinlerinde daha çok video oyun terimine rastlanması gelmektedir. Bunun dışında; bu tezin yazarı görüştüğü girişimcilerin çoğunluğunun kendilerini ve sektörü dijital oyun veya elektronik oyun sektörü ile adlandırmadıklarını, daha çok “oyun geliştiricisi” veya “oyun endüstrisi” tanımlarını kullandıklarını fark etmiştir. Kısacası, akademik ve sektörel tartışmaları daha iyi takip edebilmek, tezin var olan yazınla bağlantısını gösterebilmek adına video oyun sektörü terimi kullanılmıştır. Zaman içerisinde oyun sektörüne ait terimlerden birinin öne çıkabileceği ve/veya yeni terimler ortaya çıkabileceği de düşünülmektedir. Bu sebeple bu tezin ilgi alanını oluşturan oyun tiplerini açıklama gereği hissedilmiştir.

Temel Kavramsal Çerçeve

Bu tezde benimsenen temel kavramsal çerçeve literatür taraması bölümünde incelenmiştir. Bu çalışmada, girişimcilerin karar alma yaklaşımları gerçekleştirme teorisi ekseninde ele alınmıştır. Gerçekleştirme teorisinin işlevi, girişimcileri “belirsizliği seven” ve “risk alan” aktörler olarak resmeden bakış açısını, girişimcilerin bilişsel süreçlerini açığa çıkartarak, karar alma süreçlerini gizemini çözmek olarak tanımlanmıştır (Dew vd., 2006, pp. 319-320).

Sarasvathy, pazar fırsatlarının bulunup kullanılmaya çalışılan olgular olmadığını, aksine pazarda fırsatların daima ortaya çıkmakta olduğunu ve girişimcilerin kendi fırsatlarını yaratabileceklerini savunmaktadır (Saravathy, 2001). Bunun yanı sıra, kimi durumlarda yüksek belirsizlik olduğunu, karar alırken girişimcilerin de tüm insanlar gibi bilişsel kapasitelerinin sınırlı olduğunu, hedeflerinde muğlaklık olabileceğini veya hedeflerinin değişebileceğini göz önüne almakta ve bu açıdan daha gerçekçi bir karar alma evreni tanımlamaktadır (Sarasvathy, 2001). Bu şekilde tasvir edilen durumlarda, geleneksel, geleceği öngörmeye dayalı karar alma yaklaşımlarının başarılı

olamayacağını ancak yine de, girişimcilerin geleceği kendi eylemleri ile bir nebze de olsa kontrol altında tutabileceklerini iddia etmektedir (Sarasvathy, 2001; Sarasvathy, 2008).

Gerçekleştirme teorisinin beş ana prensibi vardır. İlk prensip, “eldeki kuş” olarak isimlendirilmiştir ve girişimcilerin faaliyetlerine başlarken, temel araçları olan bilgi birikimlerini, ağ ilişkilerini ve kimliklerini temel aldıklarını ileri sürer (Wiltbank vd., 2006). Bu prensibe göre, girişimciler, önce iş planı geliştirmek veya stratejik yönetim tekniklerini uygulamaktansa; ellerindeki kaynakları kullanarak, ne tür bir etki veya sonuç yaratabileceklerine odaklanırlar (Kalinic vd., 2014). Bu bakımdan “eldeki kuş” prensibi, girişimcileri girişimlerine başlamadan önce gerekli olduğunu düşündükleri kaynakların bir araya gelmesini beklemeyi savunan nedensel yaklaşımdansa, girişimlerine ellerindeki ile yapabilecekleri ile başlamaları yönünde yöreklendirmektedir (Sarasvathy, 2008, s. 15).

Gerçekleştirme yaklaşımının ikinci prensibi, “karşılabilir (makul) kayıp” olarak isimlendirilmiştir. Bu prensip, geleceğin belirsiz olması ve geleceğe dair doğru öngörülerde bulunmanın zor olduğu düşüncesinden hareketle, girişimcilerin kararlarını, kararlarının en kötü senaryoda yaratacağı gerçek kaybın kendileri için karşılanabilir olup olmayışına göre almalarını savunur (Sarasvathy, 2008, s. 133). Bu bakımdan karşılanabilir kayıp prensibi, piyasa aktörlerinin beklenen getirilere göre hareket ettiğini varsayan neoklasik iktisat bakış açısıyla zıt düşmektedir (Sarasvathy et al., 2008, s. 109).

Üçüncü prensip, “limonata” olarak isimlendirilmiştir. Bu prensip “beklenmedik olaylardan kaçınmayı veya onlarla uyumlanmayı değil, beklenmedik olayları bir fırsat olarak görmeyi” savunur (Sarasvathy, 2008, s. 16).

Dördüncü prensip, türkçeye “karmaşık veya gelişigüzel düzen” olarak tercüme edilebilir. Bu prensip, girişimcilerin, paydaşlarını potansiyel paydaşlar arasında rekabetçi bir eleme yapmadan seçmelerini ve paydaşlardan gelecek fikirlerin girişimle ilgili kararları şekillendirmesine açık olmalarını savunur (Sarasvathy, 2008).

Beşinci ve son prensip ise “uçaktaki pilot” olarak isimlendirilmiştir. Bu prensip, girişimcinin kararlarının temel kaynağının, “sosyoekonomik trendler, uzun dönem pazar analiz raporları veya teknolojik yörüngeler” (Sarasvathy, 2008, ss. 16-239). gibi dışsal değerlendirmeler değil; girişimcinin kendi deneyim, vizyon ve idealleri olması gerektiğini ve girişimcinin “her türlü ihtimali kontrol altında tutacak temel aktör” olduğunu savunur (Sarasvathy vd., 2014, s. 74).

Gerçekleştirme kavramı, kavramsal ve uygulamalı birçok araştırma alanı ile ilintili bulunmuştur. Bunların başında brikolaj (Baker vd., 2003), kaynak tabanlı yaklaşım (Kraaijenbrink vd., 2010), örgütsel araştırmalarda tasarım odaklı düşünme (Jelinek vd., 2008) yazınları gelmektedir. Gerçekleştirme yaklaşımının girişimciler için zamandan tasarruf sağladığı ve bağlamı öne çıkarması nedeniyle (Ganco, 2013) sosyal girişimcilik alanındaki çalışmalar için uygun olacağı düşünülmektedir (Dacin vd., 2011).

Grégoire, Corbett, ve McMullen (2011, s. 1461) gerçekleştirme teorisini, girişimcinin zihni ve çevresel belirsizliğin bilişsel etkilerine odaklanan girişimcilik alanındaki bilişsel yaklaşımlardan biri olarak ele alır. Ayrıca gerçekleştirme teorisi, iş planları ve firma performansı arasındaki ilişkide doğaçlamanın olumlu etkisini tartışan çalışmalarla ilişkilendirilmiştir (Burke, Fraser & Greene, 2010, s. 21). Gerçekleştirme teorisinin, girişimcilerin kaynak eksiklikleri ile baş etmede kullanabilecekleri bir strateji olabileceği düşünülmektedir (Dolmans, van Burg, Reymen & Romme 2014, ss. 7-8). Kimi araştırmacılar, gerçekleştirme teorisinde pazar geri beslemelerinin yalnızca izlenen yoldan sapılıp sapılmadığını anlamak için değil; yeni fırsatların keşfedilmesi için de kullanılabilir bir araç olduğuna dikkat çekmiştir (Simsek vd., 2015, s. 311). Girişimcilerin fırsatları değerlendirmekle ilgili kararlarında zaman boyutunu da gözetmesi sebebiyle, gerçekleştirme teorisinin girişimcilik yazınına potansiyel katkıları olduğu düşünülmektedir (Shepherd vd., 2015, s. 7). Teori aynı zamanda, melek yatırımcıların erken aşamadaki firmalara yapacakları yatırım kararlarında duygusal, bilişsel ve içgüdüsel faktörlerin rolü ile de ilintilendirilmektedir (Huang & Pearce, 2015).

Özetle, gerçekleştirme teorisi akademik yazında geniş yankı bulmuş, girişimcilik alanındaki araştırmalara yeni bir bakış açısı sunmuş ve var olan araştırma geleneği ile çeşitli bağlantılar kurulmasını sağlamıştır. Buna rağmen, teoride birtakım kısıtlılıklar ve açıklığa kavuşturulması gereken hususlar mevcuttur. Bu sebeple, teori birçok açıdan eleştirilmiştir.

Perry, Chandler ve Markova (2012, s. 855) var olan araçlar üzerine kurulu karar almak ile var olan amaçlar temelli karar almanın birbirinin zıttı olmadığını; iki yaklaşım arasında böylesi bir zıtlık öne sürülecekse, aynı zıtlığın gerçekleştirme ve nedensel yaklaşımların prensipleri arasında da var olduğunun gösterilmesi gerektiği eleştirisinde bulunmuştur.

Landstörn ve arkadaşları (2012), gerçekleştirme teorisinde, görevler ile karar alma biçimi arasındaki ilişkinin yeterince tartışılmadığını, belirli görevlerin belirli karar alma biçimlerini gerektirebileceğini ileri sürmektedir. Bununla birlikte, kimi eleştiriler gerçekleştirme teorisinin belli bir prensibi üzerine yoğunlaşmaktadır. Goel ve Karri (2006), gerçekleştirme yaklaşımının benimsenmesinin girişimcileri, kişilere fazla güven duymaya yöneltebileceğine ve girişimcileri bu durumdan kaynaklanan risklere karşı hazırlıksız bıraktığını öne sürmektedir. Diğer araştırmacılar ise, gerçekleştirme teorisinin karşılanabilir kayıp prensibine eleştiri getirmiş, bir girişimin olumsuz tarafına odaklanmanın, girişimcileri daha az yatırım yapmaya itebileceğinden bahsetmişlerdir (Ucbasaran vd., 2013). Diğer araştırmacılar ise, gerçekleştirme teorisinin, var olan teorilerle ilişkisinin yetersiz şekilde kurulması, varsayımlarının test edilebilirliğine dair problemleri, kapsayıcılığının yetersizliği, sınırlarının belirlenmesindeki eksiklikler, ve piyasa rekabetinin çok kısıtlı şekilde temsil edilmesi bakımından problemli olduğu; bu sebeple, gerçekleştirme teorisinin girişimcilik yazınında çığır açan bir yaklaşım olarak aktarılmasına dair şüphelerini dile getirilmiştir (Arend vd., 2015, ss. 637-638).

Sarasvathy, çıkarımlarını, bireylerin bilgiyi işlemedeki sınırlı kapasitelerine ve bu nedenle, geleceği öngörmelerinin problemli oluşuna dayandırmaktadır. Bu sebeple, kişilerin kararlarını, kararlarının en kötü senaryolarda yaratacağı kaybı veya zararı

karşılatabilme durumlarına göre vermelerini bir alternatif olarak sunmaktadır (Sarasvathy, 2001). Ancak, aynı bilişsel sınırlılıklarının, girişimcilerin en kötü senaryonun ne olacağını belirlerken de işin içinde olduğunu kısmen göz ardı etmekte ve girişimcilerin en kötü senaryolar sonucu ortaya çıkabilecek kayıplara dair ne derecede gerçekçi bir hesaplama yapılabileceğine yönelik yeterli açıklama getirmemektedir.

Buna ek olarak, gerçekleştirme teorisine dair ölçütlerin geçerliliğini araştıran çalışmalar, uygulamalı çalışmalarda gerçekleştirme ve nedensel yaklaşımları ayırtmanın problemleri yanı sıra olduğunu işaret etmektedir (Chandler vd., 2011). Gerçekleştirme teorisini temel alan uygulamalı çalışmalarda, çeşitli açılardan karşılaştırma yöntemini benimseyen çalışmalara rastlanmaktadır. Girişimcilerin gerçekleştirme ve nedensel yaklaşım kullanımlarını ve uzman ve yeni başlayan girişimcilerin karar alma biçimleri arasında karşılaştırmaya dayalı bir çok çalışma mevcuttur. Yine de, var olan çalışmalardan, gerçekleştirme yaklaşımının kaynak kısıtlılıklarından doğan bir gereklilik olarak mı kullanıldığı (Dolmans vd., 2014) veya gerçekleştirme kuramını temel alan deneysel çalışmalarda gösterildiği gibi, uzman girişimciler tarafından bilinçli olarak mı tercih edildiği (Dew vd., 2009a; Dew vd., 2009b; Dew vd., 2015) net olarak anlaşılamamaktadır.

Buna ek olarak, daha mütevazî şekilde anlatılsa da, Sarasvathy'nin çalışmalarında da girişimciler kahramanlaştırılmakta veya şansın da etkisiyle başarılı olmuş girişimciler örnekleme dahil edilmektedir. Bu durum, Sarasvathy'nin çalışmalarında kullandığı örnekleme yanlı bir seçimin varlığına işaret edebilmektedir.

Video Oyun Endüstrisi

Bu çalışmada, video oyun sektörünün karakteristik özellikleri, sektördeki rekabet ve yenilik dinamikleri, sektördeki girişimlerin hayatta kalabilmeleri ve büyüebilmeleri için gerekli görülen faktörlerin, girişimcilerin örtülü veya açık şekilde kararlarına etki edebilecekleri göz önünde bulundurulmuştur. Bu nedenle, tezin 3.bölümünde video oyun endüstrisi çeşitli bakımlardan ele alınmıştır.

Video oyunlar “hem objelere hem de sürece” karşılık gelmekte (Aarseth, 2014, s.484), “karmaşık yazılım programları” (Bogost, 2006, s.55) veya “çoklu medya etkileşimli eğlence yazılımları” (Bernal-Merino, 2015) olarak tanımlanmaktadır. Video oyunlar, bilgisayar veya diğer bir akıllı cihaz aracılığıyla oynanması sebebiyle roman veya filmlere kıyasla, daha zengin bileşenlere sahip bir hikaye anlatım biçimi olarak ele alınmaktadır (Murray, 2004).

Video oyunlarının, oyuncularının yetkinlik, bağımsızlık ve ilintililik gibi üç temel psikolojik ihtiyacını karşıladığı düşünülmektedir (Ryan, Rigby & Przybylski, 2006). Video oyunlarının temel bileşenlerini; kurallar, etkiler, imersiyon (dalıp gitme), bağlanma ve akışta olma hissi, performans, kimlik, roller ve rollerin benimsenmesi, metinlerarasılık ve metinlerüstülük, anlatı ve coğrafya oluşturmaktadır (Crawford, 2012). Öte yandan rekabet, video oyunlardaki ortak tema olarak karşımıza çıkmaktadır; “söz konusu rekabet kişinin kendisiyle olsa bile” (Dempsey vd., 2002, s.159).

Video oyun sektörünün ortaya çıkışı Bilgi ve İletişim Teknolojilerinde gerçekleşen devrimden sonra hızlanmış olsa da, temeli eğlence sektörüne dayanmaktadır (Kent, 2001). Video oyun sektörü, bilgisayar ve yazılım alanındaki gelişmelerle paralel gitmiş ve şu ana kadar yedi temel devirden geçmiştir. Her devir, baskın gelen bir donanım tasarımı ve popüler olmuş oyun tipleri ile nitelendirilmektedir (Readman & Grantham, 2006; Gallagher & Park, 2002).

Video oyun endüstrisi diğer sektörlerden bir kaç bakımdan farklılaşmaktadır. Bunların başında, oyuna olan talep gelmektedir. Geleneksel sektörlerde ürün ve hizmetler tüketicilerin ihtiyacına yöneliktir. Hatta, akademik yazında ve uygulayıcı yaklaşımlarda dahi, girişimcilerin iş modellerini insanların hayatlarında yaşadıkları problemler üzerine kurmaları tavsiye edilir (Osterwalder & Pigneur, 2010). Ancak, oyun özelinde böyle bir problemin varlığından bahsetmek zor olabilmektedir. Esasında oyun sektörünün bu anlamdaki farklılığı genel olarak tüm yaratıcı endüstrilerle ortak sayılabilir; zira yaratıcı endüstri ürünlerine olan talebin belirsiz bir doğaya sahip olduğu düşünülmektedir (Caves, 2000). Öte yandan, neoklasik iktisadi

bakış açısı ile bu sektörü anlamak, bilgi edinme sürecindeki zorluklar nedeniyle de pek mümkün olmayacaktır (Purnomo & Kristiansen, 2017). Tüketiciler açısından sembollerin anlamları, ürünün orjinallliği açısından şüpheler, ürün kalitesinin öznel olarak değerlendirilmesi ve alternatif ürünlere dair güvenilir bilgi eksikliği öne çıkarken; üreticiler açısından da sektördeki örgütlenmenin tam olarak kurulmamış oluşu, sektörde serbest çalışan işgücü sayısı, piyasadaki rekabete dair eksik bilgi, rakiplerin kim olduğunu belirleyememek sektörün büyüklüğünü ve piyasa fırsatlarını zihinlerinde çizmeyi zorlaştırmakta, tüm bu unsurlar stratejik kararlarını zorlaştırmaktadır (Purnomo & Kristiansen, 2017). Öyle ki Purnomo ve Kristiansen (2017, ss 11-12) “tutarsızlık, spontanelik, ve sanat piyasalarının tahmin edilemezliği rasyonel açıklamalara ve öngörülere baş kaldırmaktadır” demiştir.

Oyunlar, bilgisayar, konsol, akıllı telefonlar, tabletler gibi farklı platformlarda oynanmaktadır. Bunun dışında sosyal medya oyunları ve internet tarayıcıları üzerinden oynanabilen oyunlar da mevcuttur. Video oyun sektörü bağlamında platformlar “oyunun çalıştıran donanım ve yazılımlar” a denk gelmektedir (Schweizer, 2014, s. 41). Oyun geliştiricileri açısından hangi platforma göre oyun üretecekleri önemli bir karardır çünkü bazı platformlarda, özellikle konsollarda, oyun yalnızca belli bir konsolda oynatılabilmekte ve oyun geliştiricilerin platforma dair kararlarının geri dönüşü zor olabilmektedir (Daidj & Isckia, 2009). Her platformda oyun üretmenin gereksinimleri ve donanımsal olarak ihtiyaçları farklılaşmaktadır. Örneğin grafik ve ses bileşenleri yüksek olan üç-A kalitesindeki oyunları mobil cihazlarda kullanmak teknik açıdan mümkün olamayacağı gibi, kullanılması halinde cihazlarda ısınma, bataryanın erken bitmesi, bellekte fazla yer tutma gibi sorunlara yol açabilmektedir. Dolayısıyla oyun geliştiriciler, hangi platformda üretim yapacaklarına oyun tasarımı aşamasında karar vermek zorundadırlar.

Video oyun endüstrisi sıklıkla, pazar fırsatlarının bolluğu, endüstriyel büyüme, ağ dışsallıkları ve donanım üreticileri arasındaki oligopol rekabet ile tanımlanmaktadır (Williams, 2002; Daidj & Isckia, 2009). Interdisiplinerlik, etkileşim, ve hız, video oyun sektörünün temel özellikleri olarak kabul edilmektedir (Cadin & Guérin, 2006).

Video oyun sektörünün ve genel olarak üretimde yaratıcılığın oynadığı anahtar rol nedeniyle yenilikçi sektörler olduğu düşünülür ancak yeniliğin bu sektörlerde kavramsallaştırılması ve ölçülmesi de problemlidir. “Sanatsal, yapısal ve estetik yenilik⁴⁸” (Stoneman, 2010), “estetik yenilik” (Eisenman, 2013) ve “tasarımdan ilham alan yenilik” (Utterback vd., 2006) bu sektörlerdeki yeniliği anlatmak için kullanılan terimlerden bazılarıdır.

Video oyun endüstrisinde yenilik, tüketici merkezli olarak ele alınır ancak tamamen tüketici-odaklılık üretim oyuncular için sıkıcı bir oyun yaratacağı, bu da oyunun temel mantığına aykırı olacağı için, tüketici odaklı olmak yenilik için yeterli olamamaktadır (Chatfield, 2011). Video oyunlarda yenilik, tasarım, teknoloji ve içerik alanlarının birleştirilmesiyle elde edilebilir (Casper & Storz, 2017). Bazı çalışmalar, ulusal yenilik sisteminin de yaratıcı endüstrilerdeki firmaların yenilik performansını etkilediğine işaret etmektedir (Storz, 2008).

Video oyun endüstrisinde, kullanıcı-tüketici etkileşiminin yanı sıra, oyuncular ve oyun geliştiriciler arasında oyununun ortak geliştirilme süreci aşamasında bir etkileşim söz konusu olabilmektedir (Cadin & Guérin, 2006). Yaratım sürecinde böylesi bir ortaklığı mümkün kılan sebep, oyun geliştiriciler ve oyuncular arasındaki bilgi asimetrisinin görece az oluşu ve iki grup arasındaki sosyal benzerlikler olabilmektedir.

IGDA’nın çalışmasına göre, endüstrinin gelecekteki büyümesi “oyun tasarımındaki ilerlemelere”, “içerikteki çeşitliliğe”, “hikaye anlatım alanındaki gelişmelere” ve “oyun geliştirme sürecindeki finansman olanaklarının gelişmesine” bağlıdır (Weststar & Leagult, 2016). Ancak, sektöre dair bu öngörüler ülkeler arasında değişebilmektedir. Örneğin İsveç’te, sermaye ve insan kaynaklarına erişimdeki

⁴⁸ İngilizcesi “soft innovation” olan terimin Türkçe yazında oturmuş bir karşılığı bulunamamıştır. “Soft innovation”, ürün ve hizmetlerdeki yeniliğin sanatsal, yapısal ve estetik açılarını kapsayan kısmını tanımlamak için kullanılan bir kavramdır (Stoneman, 2010).

engellerin azalması sektörün büyümesine yönelik önemli faktörler olarak göze çarpmaktadır (İsveç Oyun Endüstrisi, 2018).

Araştırma Yöntemi:

Bu tezin metodoloji bölümünde, araştırma sorularını yanıtlarken hangi yöntem ve prosedürlerin kullanıldığı açıklanmıştır. Bu tezde, verilerin başlıca kaynağını katılımcılarla yapılan yüz yüze yarı yapılandırılmış mülakatlar oluşturmaktadır. Mülakatlar sırasında bir mülakat rehberi kullanılmıştır. Mülakat rehberi tüm katılımcılara temel sorunların sorulduğundan emin olunması, mülakat süresinin etkin kullanılması ve araştırmacının gerekli bulduğu konularda ek sorular sormasına fırsat sağlaması bakımından nitel çalışmalarda tavsiye edilmektedir (Patton, 2002, s. 343). Mülakattan önce her katılımcıya mülakatın ses kaydının alınması ve bilgilerinin araştırma amaçları doğrultusunda kullanımını onayladıklarına dair rıza formu imzalatılmıştır. Pilot çalışma dışındaki tüm görüşmelerin dili Türkçe olup, mülakatların ortalama süresi ise yaklaşık 86 dakikadır. Tez kapsamındaki görüşmeler 5 Ocak 2017 ve 30 Haziran 2018 tarihleri arasında gerçekleştirilmiştir. Katılımcılara elektronik posta yolu ile standart bir araştırmaya katılım daveti gönderilmiş, bu elektronik postada çalışmanın amacı, araştırma ve araştırmacıya dair bilgiler ve iletişim adresleri paylaşılmıştır.

Veri analizinde ilk olarak, mülakat deşifrelerinin ve saha notlarının çok defa okunup incelenmesinden sonra, katılımcıların oyun endüstrisine giriş motivasyonları bakımından farklılaştığı gözlemlenmiştir. Bu noktadan hareketle dört tip girişimci profili ortaya çıkarılmıştır. Bunlar; girişimciliğe halen öğrenciyken başlayan; öğrenci girişimciler, daha önce bir girişim kurmuş ve video oyun sektörüne giriş yapmış deneyimli girişimciler, oyun sektöründe girişimci olmak için maaşlı işlerinden ayrılmış; işten ayrılanlar ve profesyonel idealist girişimciler olarak gruplandırılmıştır.

Veri analizinin ikinci adımında ise örneklemdaki girişimcilerin, girişimlerine başladıktan görüşmelerin yapıldığı tarihe kadar olan girişimcilik serüvenleri incelenmiştir. Buna göre, ODTÜ Teknokent'te yerleşik ve video oyun sektöründe

faaliyet gösteren girişimcilerin girişimcilik serüvenleri boyunca temel olarak sekiz aşamadan geçtikleri tespit edilmiştir. Bunlar i) başlangıç aşaması, ii) takım oluşturma aşaması, iii) iş modeli ve ürün geliştirme aşaması iv) pazarlama aşaması, v) ağ kurma aşaması, vi) kriz aşaması, vii) organizasyonel yapıyı değiştirme aşaması ve viii) takım üyelerinde değişim aşaması olarak karşımıza çıkmıştır.

Girişimcilerin geçirdikleri temel aşamalar tespit edildikten sonra, her girişimcinin ilgili süreçteki önemli kararları tespit edilmiştir. Bu kararların ne ölçüde Sarasvathy'nin gerçekleştirme kuramına benzer şekilde alındığını anlamak amacıyla, kararların gerçekleştirme ve nedensel yaklaşım arasında ayrıştırılması uygulamalı çalışmalarda var olan yöntemlere benzer şekilde gerçekleştirilmiştir (Sarasvathy, 2001; Dew vd., 2009; Reymen vd., 2015; Read vd., 2009). Çalışmada kullanılan kod rehberinin özet bir versiyonu aşağıda sunulmuştur:

Nedensel Yaklaşım	Gerçekleştirme Yaklaşımı
Girişimcinin eylemleri önceden belirlenmiş bir amaca göre şekillenmiştir.	Önceden belirlenmiş bir amaç yoktur veya yeterli seviyede tanımlı değildir. Eylemler mevcut olan kaynaklara göre şekillendirilmiştir.
Kararların temelini girişimcilerin eylemleri sonucu elde edebilecekleri beklenen getiriler oluşturur. Beklenen getiriler hesaplanır, getirileri maksimize etmek için stratejiler hazırlanır.	Riskleri belirlemeye yönelik bir çaba yoktur veya detaylı değildir. Kazançlara değil, en kötü senaryodaki kayıplara odaklanılır.
Beklenmedik durumlara karşı B planı geliştirilir, beklenmedik durumlardan mümkün olduğunca kaçınılır, beklenmedik olaylarla karşılaşıldığında plan veya stratejiler iptal edilir.	Beklenmedik durumlar, eyleme geçmeye engel teşkil etmez. Girişimci belirsizlikle barış içindedir, belirsizliği fırsat olarak görür, beklenmedik olaylar karşısında geri bildirimler ışığında planlarını değiştirir.
Potansiyel paydaşlar arasında rekabetçi eleme süreci işler. Kişiler şirket amaçları açısından işlevlerine göre seçilir.	Ortaklıklar rekabetçi eleme süreci yapılmadan oluşturulur. Girişimci, ortaklarını güven ilişkisi içinde olduğu kişiler arasından seçer. Girişimci, ortakların kararlarının girişimi şekillendirmesini hoş karşılar veya izin verir.
Piyasa eğilimleri ve tahminleri takip edilir ve değerlendirilir; karar alma	Girişimci geleceği tahmin etmek yerine, elde etmek istediği sonuç için gerçek

aşamasında bunlara uygun şekilde strateji belirlenir. Rakiplerin stratejilerini takip edilir.

hayatta etkileşimlerde bulunarak geleceği kontrol etmek için eylemlerde bulunur.

Bu çalışmada ayrıca, girişimcilerin girişimcilik serüvenlerindeki her aşama için dışsal etmenlerin etkisi tespit edilmiştir. Her aşama içerisindeki incelemelerde dışsal çevrenin etkisi tetikleyici faktörler başlığı altında kavramsallaştırılmıştır.

Girişimcilik Serüveni Aşamalarında Girişimcilerin Karar Alma Yaklaşımları ve Tetikleyici Faktörler:

Bu tezin bulgular bölümünde, girişimcilerin geçirdikleri sekiz aşama boyunca benimsedikleri karar alma yaklaşımı ve her aşamada kararlarına etki eden faktörler incelenmiştir. Çalışmanın bulguları aşağıdaki şekilde özetlenebilir.

1. Dört farklı tipteki 22 girişimcinin, girişimcilik serüvenleri boyunca geçtikleri sekiz aşama ele alındığında 176 adet karar noktası ortaya çıkmıştır. Bu sekiz aşama içerisinde girişimcinin kararlarında herhangi bir değişiklik olmadığı ve / veya girişimciler tarafından ilgili aşama için hiçbir karar alınmadığı sekiz durum toplam karar sayısından düşüldüğünde 168 karar elde edilmiştir. Toplam kararlar içerisinde gerçekleştirme yaklaşımı ile 97 adet, nedensel yaklaşım ile 63 adet ve her iki yaklaşımın da beraber kullanıldığı 8 karar bulunmuştur. Dolayısıyla, video oyun sektöründeki girişimcilerin, stratejik kararlarını alırken gerçekleştirme yaklaşımına nedensel yaklaşımdan daha çok başvurdukları bulunmuştur. Bu bulgudan hareketle Saravathy'nin gerçekleştirme yaklaşımının bu çalışmanın kapsamı dahilinde video oyun sektöründeki girişimcilerin karar alma yaklaşımını çoğunlukla açıkladığı tespit edilmiştir.

2. Başlangıç karar aşamasında, gerçekleştirme yaklaşımı baskın yaklaşım olarak tespit edilmiştir. Bu aşamada tetikleyici faktörler; girişimcilerin çeşitli yarışma ve organizasyonlarda elde ettikleri başarı ve takdir, daha önceki işlerin duydukları tatminsizlik, tesadüfler, girişimcilik desteklerinin varlığı, oyun toplulukları ile

kaynaşma, altyapı ihtiyaçları ve eğitim geçmişleri olarak belirlenmiştir. Bu bulgu, gerçekleştirme yaklaşımının girişim yaratma süreçlerinde, özellikle fikir aşamasında yoğun olarak kullanıldığını gösteren çalışmaları desteklemektedir (Reymen vd., 2015). Benzer şekilde, başlangıç aşamasında gözlemlenen planlama davranışının eksikliği, bilgiyi işleme maliyetlerindeki artış, beklenmedik gelişmeler ve yeni bilginin ortaya çıkışı ile de açıklanabilir (Casson, 2003).

3. Takım kurma aşamasında, girişimcilerin çoğunlukla gerçekleştirme yaklaşımına başvurdukları görülmüştür. Bu aşamada, gerçekleştirme yaklaşımını benimsemeyi tetikleyen faktörler; kişiler arasındaki tanışıklıklar, oyunlara dair benzer tutkuya sahip olmak, profesyonel kapsamda olmasa bile daha önce beraber oyun geliştirme deneyimine sahip olmak iken, karşılıklı ihtiyaçlar ve kişisel vizyona atfedilen önem nedensel yaklaşımı tetikleyici faktörler olarak belirlenmiştir.

4. Ürün geliştirme ve iş modeli oluşturma aşamasında baskın olan karar alma yaklaşımı gerçekleştirme yaklaşımı olmuştur. Bu aşamadaki tetikleyici faktörler, takımların sahip oldukları kaynak ve vizyonun oyun projesi ile uyumu, teknik imkansızlıklar ve çeşitli hibe programlarının kurallarına uyma zorunluluğu olarak belirlenmiştir.

5. Pazarlama aşamasında gerçekleştirme yaklaşımı en çok kullanılan yaklaşım olmuştur ancak nedensel yaklaşım bu aşamada ağırlığını biraz daha arttırmıştır. Pazarlama aşamasındaki tetikleyici faktörler kaynak kısıtlılıkları, oyun türü, teknolojik araçlar ve platformlar tarafından sunulan imkanlar olarak belirlenmiştir.

6. Ağ kurma aşamasında karar alma yaklaşımı neredeyse gerçekleştirme ve nedensel yaklaşım arasında eşittir ancak bir farkla gerçekleştirme yaklaşım baskın çıkmıştır. Bu aşamadaki tetikleyici faktörler yerel ekosistemin sunduğu ağ kurma olanakları, girişimcilerin deneyim seviyesi, spesifik ihtiyaçlar, girişimcilerin ağ kurma ve geliştirme becerileri ve zaman kısıtları öne çıkmıştır.

7. Çalışmanın katılımcılarının tümü, bir şekilde işlerinin tıkanıklık noktasına geldiğini ve/veya kimi durumlarda şirketlerinin batma noktasına geldiğini deneyimlemiştir. Kriz aşamasında krize sebebiyet veren faktörler belirsizlik, finansal darboğazlar, takımdan kaynaklanan problemler ve iş modellerinin başarısızlığı olarak göze çarpmıştır. Bu aşamada girişimciler daha çok gerçekleştirme yaklaşımını benimsemişlerdir.

8. Organizasyonel yapıyı değiştirme aşamasında, baskın karar alma yaklaşımı nedensel yaklaşım olmuştur. Bu aşamada girişimcilerin kararlarını tetikleyici faktörler; sözleşmelere dair yükümlülükler, ekosistem kaynaklı yönlendirmeler, geçmiş başarılar, artan kaynaklar ve sürdürülebilir iş modelinin ortaya çıkışı olarak göze çarpmaktadır.

9. Takım üyelerinin değiştirilmesi veya takımı yeniden oluşturmak aşamasında girişimcilerin kararlarını oldukça seçici şekilde aldıkları gözlemlenmiştir. Bu aşamada çoğunlukla nedensel karar alma yaklaşımını benimsemişlerdir. Girişimcilerin kararlarını tetikleyen temel faktörler; finansal kaynaklarındaki değişim, proje büyüklüğünün getirdiği gereklilikler, topluluk ile kaynaşma, vizyon değişimi ve anlaşmazlıklar olarak göze çarpmaktadır.

Bulguların yorumlanması ve varolan yazına etkileri:

Çalışmanın bulguları ve bulguların var olan yazına olan etkileri, bu tezin tartışma bölümünde ele alınmıştır. Bu çalışmada, girişimcilerin başarıyı kavramsallaştırma şekillerinin, girişimcilerin kararlarını nasıl gerekçelendirdiklerini anlamak açısından önemli olabileceği düşünülmüştür. Çalışmanın katılımcılarının, video oyun endüstrisinde belirli bir başarı formülü olmadığı konusunda hem fikir olduğu gözlemlenmiştir. Bu durum, içerdikleri “yüksek dinamizm” ve “uzun dönem süren belirsizlik” nedeniyle yaratıcı ve kültürel endüstrilerde baskın ticari paradigmaların ortaya çıkmadığını savunun çalışmalarla (Lampel vd., 2000, s. 68) örtüşmektedir. Buna rağmen, nitel verilerin MaxQda yazılımı aracılığıyla incelenmesi sonucu; çok sayıda ürünle pazar denemeleri yapmak, pazarlama stratejisi ve takım yönetimi becerileri, bu çalışmanın katılımcıları tarafından video oyun sektöründe başarılı

olmanın bileşenlerini oluşturmuştur. Video oyun sektörünün dinamikleri, öngörü ve tahminlerde bulunmaktansa“önce yap, sonra gör” şeklinde bir genel kurala işaret etmektedir. Bu sebeple, bir çok girişimci, başlangıçtaki iş modellerini değiştirmekte, farklı oyun türleri ve platformlarda denemeler yapmaktadır.

Bu çalışmada ortaya atılan temel argüman, *video oyun endüstrisinde, girişimcilerin, sürdürülebilir bir iş modeline ulaşana kadar, pazardaki belirsizlikle baş etmek için ürünlerini birer keşif aracı olarak kullandıklarını* iddia etmektedir. Söz konusu sürdürülebilir iş modeline ulaşmak için ise kararlarda esneklik gereklidir. Bu durum, çalışmanın katılımcılarının kararlarını alırken gerçekleştirme yaklaşımını daha baskın olarak kullandıkları bulgusu ile de örtüşmektedir.

Çalışmanın örneklemini çoğunlukla girişimciliğe yeni başlayan girişimcilerin oluşturması, ve girişimcilerin kararlarında gerçekleştirme yaklaşımının daha çok kullanılan yaklaşım olması göz önüne alındığında, ortaya çıkan çıkan bulgular, yeni başlayan girişimcilerin gerçekleştirme yaklaşımını daha çok benimsediği şeklinde yorumlanabilir. Söz konusu bulgu, deneyimli girişimcilerin, daha az deneyimli girişimcilere göre gerçekleştirme yaklaşımını daha çok benimsediğini gösteren var olan çalışmalarla çelişmektedir (Sarasvathy, 2001; Sarasvathy, 2008; Read vd.,2009; Dew vd., 2009b; Dew vd., 2011). Öte yandan, örnekleme deneyimli girişimcilerin oran olarak azlığı, söz konusu bulguların dikkatle yorumlanması gerektiğini ve ilerideki çalışmalarda örnekleme daha eşit temsil edilen girişimci tipleriyle tekrarlanmasının bulguların geçerliliğini değiştirebileceği düşünülmektedir.

Özellikle öğrenci-girişimciler, yeni başlayan girişimcilere dair var olan yazında “hala çabalama aşamasında” (Carter vd., 1996) olan girişimciler olarak da adlandırılabilir. Hala çabalama aşamasındaki girişimciler girişimleri için daha az zaman ve çaba harcayan ve girişimciliği yordayan faaliyetleri daha az gerçekleştiren girişimciler olarak tanımlanmaktadır (Carter vd., 1996, s. 162). Bu çalışmada, öğrenci girişimciler kategorisindeki katılımcılar, şu anki durumları itibariyle değil, başlangıç koşulları itibariyle bu kategoriye dahil edilmiştir. Öyle ki, öğrenci girişimciler kategorisinde “halen çabalama aşamasında olan” girişimciler tanımını karşılamayan, firma kurmuş

ve ilerletmiş girişimciler de bulunmaktadır. Bu sebeple, gelecekteki çalışmalar bu farkı gözetmelidir.

Çalışmadan ortaya çıkan bulgular, coğrafi yakınlığın önemini ortaya koymaktadır. Öyle ki girişimciler ODTÜ Teknokent’te olmanın onlar için çok değerli olduğunu, büyük ölçekteki oyun firmaları ile henüz bir işbirliği yapmış olmasalar ve buna dair planlanan bir adımları olmasa dahi, onlarla aynı ortamda olmaktan duydukları memnuniyeti dile getirmişlerdir. Bu da “tutkunun bir yerel hareketlilik” olarak ortada bulunduğunu öne süren çalışmaları desteklemektedir (Bhansing vd., 2018, s.8).

Bu çalışmada gözlemlenen en şaşırtıcı bulgu, aynı pazarda rekabet ediyor olmalarına karşın, girişimciler arasındaki işbirliği ve dayanışmanın yoğunluğu olmuştur. Girişimciler arasındaki iş birliği, birbirlerinin oyunlarını yayınlamak, birlikte karar almak, bilgiyi açıkça paylaşmak ve girişimcilerin birbirleriyle ilişkilerindeki güvene bakılarak görülebilir. Girişimciler arasındaki bu dayanışmanın temelinde video oyun sektöründeki ani ve sık teknolojik değişim ve/veya sektörün büyüklüğü olduğu iddia edilebilir. Ancak, işbirliğine dair bu bulgu, “işbirliği içinde rekabet” yazını ile genişletilebilir (Bengtsson & Kock, 2000; Walley, 2007; Morris, Koçak, & Özer, 2007; Dagnino & Rocco, 2009; Ritala & Hurmelinna-Laukkanen, 2009; Bengtsson & Johansson, 2014).

Çalışmanın katılımcıları, ister deneyimli girişimciler olsun, ister yeni başlayan öğrenci-girişimciler olsun, video oyun sektöründe kesin bir başarı formülü olmadığı noktasında birleşmektedirler. Bu görüş kültürel ve yaratıcı endüstrilerin içerdikleri “yüksek dinamizm” ve “uzun belirsizlik süreçleri” nedeniyle baskın ticari paradigmalar ortaya çıkaramadan geliştikleri görüşünü desteklemektedir (Lampel vd., 2000, s. 268). Ancak yine de, girişimcilerin serüvenleri boyunca aldıkları kararları daha iyi anlamak için başarıya dair fikirleri, algıları ve deneyimleri incelendiğinde, başarının pazarda çok sayıda deneme yapmak, takım yönetimi ve pazarlama stratejisi ekseninde şekillendiği görülmüştür.

Politika önerileri

Bu çalışma aracılığıyla, video oyun sektörüne dair dinamikler, değişim, sektördeki fırsat ve zorluklar ve zorluklarla baş etme yöntemlerini girişimcilerin bakış açısından ortaya koymak mümkün olmuştur. Çalışmanın bulgularının, girişimciler ve oyun geliştiriciler, ekosistem yöneticileri ve politika yapıcılar açısından etkileri bulunmaktadır. Söz konusu etkiler, tezin politika etkileri bölümünde ele alınmıştır.

Çalışmanın politika yapıcılar açısından etkileri mikro, meso, ve makro seviyelerde ele alınmış ve politika amaçları, araçları ve hedeflerinden oluşan bütünsel bir politika çerçevesi sunulmuştur. Mikro seviye politikalar, beceri kazanımını; meso seviye politikalar, endüstriyel stratejileri ve makro seviye politikalar, ulusal yenilik sistemindeki tüm ilintili kurumları, sosyo-ekonomik boyutları ve var olan politikaları kapsamaktadır.

Bu çalışmadan, temel politika çerçevesi, ülkeler arasındaki teknolojik değişim ve ekonomik büyüme arasındaki farkı ulusal kurumların rolü ile açıklayan ulusal yenilik sistemleri (UYS) yaklaşımı benimsenerek ortaya konmuştur (Freeman, 1995). Her tür sistemin bir amaç doğrultusunda kurulduğu düşünüldüğünde, UYS'nin amacının da yeniliğin toplum içinde gelişmesi, yaygınlaşması ve kullanımını mümkün kılmak olduğunu söylemek mümkündür (Edquist, 2005).

Çalışmanın politika etkileri, evrimsel iktisadi yaklaşım benimsenerek ele alınmıştır. “Evrimsel teori, teknolojik rekabetin ekonomik kalkınmanın itici gücü olduğunu ve bu durumda neden dünyanın şuanki gibi değiştiğini anlamakla ilgilenir. Temel ilgi alanı, “denge ve durağan durum değil süreçler ve değişimdir” (Metcalf, 1995, s. 30). Bu bakış açısına göre ekonomik sistem, bir karmaşık kurallar sistemidir (Dopfer, Foster & Potts, 2004). Ekonomik sistemin evrimi ise “zihinlerde ve kaynaklarda” gerçekleşen genel kurallardaki değişime karşılık gelmektedir (Dopfer & Potts, 2008, s. 8). Söz konusu genel kuralların özne boyutu, mikro birimlerin bilişsel ve davranışsal değişimini kapsarken; nesne boyutu ise sosyal ve teknik değişimi kapsar (Dopfer & Potts, 2008). Bu çalışma, girişimcilerin karar alma yaklaşımını incelemekle, ekonomik

sistemdeki deęişimin özne boyutunun anlaşılmasına katkı sağlamıştır. Öte yandan bu çalışma, girişimciliğin sosyal boyutları olduğunu ve görünürde oldukça bireysel bir konu olarak anlaşılabilen karar alma olgusunun bile, bireylerin dahil oldukları sosyal boyutlardan etkilendiğini göstermiştir. Bir başka deyişle, bu çalışma, girişimciliğin sistematik faktörlerin kaydadeğer derecede etki ettiği sosyal bir süreç olduğunu bulmuştur (Radosevic & Yoruk, 2013). Bu sebeple, politika önerileri kısmında, daha çok girişimcinin rolünün vurgulandığı Sarasvathy'nin gerçekleştirme kuramından bir nokta ileriye gidilerek, daha kapsamlı bir bakış açısı getirilmiştir.

Bu çalışmanın politika önerileri iki temel amaç ekseninde toplanmıştır:

- i) Video oyun sektöründeki girişimcilerin kaynaklarının artırılması
- ii) Türkiye’de video oyun şirketlerinin hayatta kalmasını ve büyüyebilmesini destekleyen bir ekosistem tasarlanması

Bu çalışma, kaynak bakımından daha donanımlı girişimcilerin, girişim serüvenlerinin görece erken aşamasında ve çoğunlukla nedensel yaklaşıma dayalı kararlar aldığını göstermiştir. Nedensel kararlar alabiliyor olmak bir anlamda sürecin daha öngörülebilir hale gelmiş olması şeklinde yorumlanabilir. Video oyun sektöründeki belirsizliğin tümünü ortadan kaldırmak mümkün olmasa da, girişimcileri daha donanımlı hale getirerek en azından çeşitli zorluklar ve belirsizlikler karşısında ayakta kalma ihtimalleri artırılabilir. Böylelikle, çeşitli belirsizliklerin yaratabileceği olumsuz etkiler azaltılabilir ve girişimcilere karar alma süreçlerinde kontrol kazandırılabilir.

Girişimcilerin ve şirketlerin kaynaklarının artırılmasına yönelik mikro seviye politikalar; teknik ve pazar odaklı eğitim programlarının tasarlanması, girişimcilere duygusal zeka ve iletişim alanında düzenli aralıklarla eğitimler verilmesi ve danışmanlık hizmetlerinin iyileştirilmesi konularını kapsamaktadır. Meso seviyedeki politikalar ise; girişimcilerin finansal kaynaklara erişimindeki engellerin azaltılmasını ve video oyun üretiminde interdisiplinerliğin artırılmasına yönelik politikaları kapsamaktadır. Kaynak bakımından daha donanımlı girişimciler ve

şirketler yaratılması makro düzeyde atılacak politika adımlarını da gerektirmektedir. Özellikle nitelikli insan kaynağının sistematik bir şekilde sektöre entegrasyonu sağlanmalıdır. Bu sebeple, üniversitelerde oyun geliştirme ve tasarımına yönelik lisans eğitim programlarındaki eksikliğin giderilmesi ve bu üniversite programlarında eğitim verecek nitelikteki eğitmen kadrosunun oluşturulması için yurtdışındaki Türk araştırmacı, uzman ve akademisyenlerin Türkiye'ye gelmesi için ulusal düzeyde tersine yetenek göçü benzeri bir program kurulmasına ihtiyaç vardır. Söz konusu programlarla Türkiye'ye gelen eğitmenlere gerekli bütçe ve özerklik sağlanması ise kritik bir husustur.

Türkiye'yi video oyun sektöründeki firma ve girişimcilerin büyüyecekleri ve tercih edebilecekleri bir ekosistem olarak kurgulamak, bu çalışmanın ikinci temel politika amacını oluşturmaktadır. Girişimcilik faaliyetleri ve girişimcilik performansı son yıllarda, bağlam ve belli bir coğrafi bölgede yoğunlaşmanın önemine işaret eden girişimcilik ekosistemi başlığı altında kavramsallaştırılmıştır (Cohen, 2006; Teece, 2007; Pitelis, 2012; Zahra & Nambisan, 2012; Autio vd., 2014; Mack & Mayer, 2016; Spigel, 2017; Audretsch & Belitski 2017; Acs vd., 2017). Girişimcilik ekosistemleri yerel kültür, sosyal ağlar, yatırım sermayesi, üniversiteler ve ekonomi politikalarından oluşur (Spigel, 2017). Girişimcilik ekosistemi yaklaşımı aktörler arasındaki karşılıklı bağımlılığı (veya dayanışmayı) ön plana çıkarır ve girişimcilik faaliyetlerini de bu dinamik ilişki sonucunda açığa çıkan olgular olarak değerlendirir (Acs vd., 2017). Türkiye'nin kendisini bilgi toplumuna dönüştürme hedefi kapsamında, oyunlar, mobil uygulamalar ve yazılım ve bilgi teknolojilerini destekleme hedefi 10. Kalkınma Planı'nda da mevcuttur (BTK, 2019).

Bu politika amacı kapsamındaki mikro seviye politikaları; bilgi üreten mekanizmaların iyileştirilmesi ve çeşitlendirilmesi, video oyun sektörü için özel olarak tasarlanmış kuluçka ve ön kuluçka merkezlerinin sayıca ve coğrafi dağılım olarak artması, ve var olan kuluçka ve ön kuluçka merkezlerinin imkanlarının arttırılması oluşturmaktadır. Bu amaçla önerilen meso düzey politikalar ise; video oyun endüstrisine yönelik teşvik programlarının düzenlenmesi ve Türkiye video oyun sektörünün küresel bağlantılarının iyileştirilmesi ve uzun dönem iş birliklerinin kurulmasına

odaklanmaktadır. Bu amaçla atılacak makro seviye politikalar ise, Türkiye ekosisteminde eksik olan kurum ve organizasyonların kurulmasını ve video oyun sektörüne dair kamuoyunda var olduğunu gözlemlediğimiz olumsuz bakış açısını ve toplum olarak başarısızlığı algılayış şeklimizin değiştirmesine yönelik uzun soluklu adımları kapsamaktadır.

Türkiye’de politika yapımcılar video oyun sektörünü Bilgi ve İletişim Teknolojileri, Endüstri 4.0 politikaları veya yaratıcı sektörler kapsamında ele alabilirler. Video oyun sektörü ve dijital oyunlar, Avrupa Birliği’nin sosyal katılım amaçlarının bir bileşenidir (Stewart & Misuraca, 2013). Daha da önemlisi oyunlar, toplumsal kültürün bir parçasıdır; toplumda yaratıcılık ve fikirlerin ifade edilmesini sağlayan alanlardır. Bu açıdan, ülkelerin demokratik sistemlerinin bir bileşeni oldukları unutulmamalıdır. Bu noktada, yenilik politikalarının temelinde, politikaların uygulandığı ülkenin sosyal refahını arttırmak olduğunun tekrar hatırlatılmasında da fayda vardır.

İçerdiği keşif süreci nedeniyle yeniliğin öngörülemeyen açıları vardır ve bu durum özellikle kamu tarafından fonlanan politikalarda, politika yapımcıları hesap verilebilirlik ilkesi gereği zora sokuyor gibi görünebilir (Noteboom, 2008). Ancak söz konusu hususlar, konuyla ilgili zaman içinde bilgi birikimi arttırılarak, sistematik olarak veri toplanarak, konuyla ilgili akademisyenler, sektör uzmanları ve sivil toplum örgütleri ile işbirliği içinde çalışılarak çözülebilir.

Teknopark yöneticileri, kuluçka ve ön kuluçka merkezleri bu tezde anlatılan girişimcilik serüvenlerinin aşamalarını ve her aşamadaki önemli çevresel faktörleri göz önünde bulundurmalarının başarılı oyun geliştirme ekipleri ve şirketlerinin ortaya çıkmasına dair çabalarına katkıda bulunacağı umulmaktadır. Firma seviyesinde yenilik performansının öğrenme kabiliyetleri ve bilgi transferinin önemli rol oynadığı (Cohen & Levinthal, 1990) düşünüldüğünde, teknokent ve benzeri kuruluşların yöneticilerinin erişime sahip oldukları firmaların tikanıklık yaşadığı noktaları sistematik şekilde takip etmesi büyük önem taşımaktadır.

Çalışmanın özgün yanları ve sınırlılıkları

Bildiğimiz kadarıyla bu çalışma, Türkiye’de video oyun sektöründeki girişimcilerin dinamik girişimcilik serüvenlerinin aşamalarını ortaya koyan ve karar alma yaklaşımlarını inceleyen ilk çalışmadır.

Gerçekleştirme teorisini temel alan uygulamalı çalışmalar, çoğunlukla farklı alanlarda faaliyet gösteren girişimcileri gruplayarak, girişimcilerin karar alma yaklaşımlarına dair toplu bir çıkarımda bulunmaktadır (Hauser, Eggers & Guldenberg, 2019; Szambelan & Jiang, 2018; Tryba & Fletcher, 2019). Bu tür çalışmalarda, farklı alanlardaki belirsizliğin aynı olduğu varsayılmaktadır; ki bu varsayımın gerçeği ne ölçüde yansıttığı tartışmalıdır. Bu çalışmanın özgün yanlarından biri de aynı sektörde faaliyet gösteren girişimcileri ele alıyor olmasıdır. Böylelikle, sektörel dinamikleri ve bunların girişimcilerin kararlarına olan etkilerini tutarlı şekilde gözlemlene fırsatı sunulmaktadır.

Sektörel dinamiklerin girişimcilerin kararlarına olan etkisi nadir olarak gerçekleştirme teorisindeki uygulamalı çalışmalarda yer almaktadır. Maine, Soh ve Dos Santos (2015)’in biyoteknoloji endüstrisi üzerindeki çalışmasında, belirsizliğin yüksek olduğu klinik deney süreçlerinde dahi girişimcilerin nedensel karar alma yaklaşımı sergileyebildikleri bulunmuştur. Bu durum, düzenleyici kurumların ve risk sermayedarlarının sürece yönelik getirdiği bazı düzenlenmelerin sonucudur. Bu ve benzeri dışsal etmenleri göz önüne almamak, karar alma biçimlerini inceleyen araştırmacıları yanlış çıkarımlarda bulunmaya itebilir. Bu nedenle bu çalışmada, karar alma süreçleri içsel ve dışsal etmenler arasındaki etkileşimin bir sonucu olarak ele alınmıştır. Bu çalışma, karar alma sürecine çevresel etmenleri dahil eden Maine ve arkadaşlarının (2015) çalışmasına nazaran, örnekleminin büyüklüğü bakımından üstünlük göstermektedir.

Belirsizlik, karmaşıklık, örgütsel öğrenme ve bu unsurların endüstriyel örgütlenmeye, rekabet ve yenilikçilik dinamiklerine etkisi evrimsel iktisat yazınındaki çalışmalarda da yer bulmaktadır. Ancak, evrimsel iktisat bakış açısındaki çalışmalar, bu olgulara

genellikle daha geniş bir pencereden bakmakta; öyle ki teknolojik değişimin kendisi veya belli bir veya bir kaç endüstriyel bölgedeki etkilerine odaklanmaktadır. Bu çalışmada ise, tüm bu olgulara daha yakından bakma fırsatı bulunmuştur. Öte yandan, evrimsel iktisat yaklaşımındaki çalışmalarda analiz birimi genel olarak firmalar iken, bu çalışmada girişimcilerin kendisine odaklanılmıştır.

Video oyun sektöründeki belirsizlik düzeyini ve girişim fırsatlarına etki eden sistemik etmenleri göz önüne alması bakımından, bu çalışma aynı zamanda ulusal yenilik sisteminin girişimcilerin kararlarına etkisini de ortaya koymaktadır. Bu yolla, çalışma girişimcilerin karar alma olgusuna mikro ve makro boyutları dahil ederek daha dengeli bir bakış açısı getirmiştir. Bu sayede, çalışmanın bulguları girişimcilerin kararlarına ışık tutmanın yanı sıra, video oyun sektörünün Türkiye’deki gelişim düzeyine dair de bilgi vermektedir.

Buna rağmen çalışmada çeşitli sınırlılıklar mevcuttur. Çalışmanın örneklemini genellikle küçük firma sahibi girişimciler oluşturmaktadır ve bu nedenle sınırlı bir arşiv verisine ulaşılabilmektedir. Bu durum, verilerin doğrulanması konusunda kısıtlılık doğurmuştur. İkinci olarak, firmaların küçük ölçekli oluşu, ve çalışmadan kullanılan mülakat rehberi girişimcilerin girişimci olmaya karar vermeden önceki süreçleri de kapsadığından ancak firma kurucularının soruları cevaplandırabilecekleri düşünülmüş, bu sebeple çoklu paydaş analizi yapma konusunda engel teşkil etmiştir.

Üçüncü olarak, bu çalışma yalnızca ODTÜ Teknokent’te yerleşik video oyun sektörü girişimcilerini kapsamaktadır. Çalışmanın bütçe ve zaman kısıtlılıkları, teknokent ekosistemi dışındaki girişimcilere yönelik ikincil bir saha analizi yapmayı ve ekosisteme dahil olan ve olmayan girişimciler arasında bir karşılaştırmalı sonuçlar ortaya koymayı mümkün kılmamıştır. Bu nedenle çalışmanın genellenebilirlik açısından kısıtları mevcuttur.

Dördüncü olarak, bu çalışmanın bulguları aynı bağlamdaki girişimcilerle yapılacak ikinci bir çalışma ile desteklenirse daha anlamlı olacaktır. Böylelikle, girişimcilerin

karar alma süreçlerine etki eden unsurların zaman içinde değişip değişmediği görülebilecektir.

Bu çalışmada oluşturulan girişimci profilleri keskin kategoriler değildir. Gelecekteki çalışmalarda, farklı girişimci profilleri oluşturabilir. Öte yandan bu çalışmada bazı girişimcilerin oyunlarının ticari başarısından çok sanatsal başarısını önemseydiği ve bu durumun kararlarına etki ettiği görülmüştür. Ancak, girişimcilerin hırs ya da tutku düzeylerini tespit etmeye yönelik özel bir inceleme yapmak bu tezin temel ilgisinin dışında kalmaktadır. Gelecekteki çalışmalarda, ilgili yazından (Vallerand vd., 2003) yararlanarak, girişimcilerin karar alma yaklaşımları ile hırs ya da tutku seviyelerinin, onları belirli bir karar alma yaklaşımına yöneltip yöneltmediği incelenebilir.

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