GAME DESIGN PRAXIOLOGY

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SUMMARY

This dissertation is positioned on the multidiscipline of *game studies*. It presents the findings of a ten-year study of game developers and the contexts of their creative practices. As a multidisciplinary enquiry, this study draws from the theoretical and methodological traditions of creativity studies, management studies, computer science, and design research to supplement the young discipline of game studies. However, studying game developers is not a typical focus for the field of academic game research. The dissertation critically comments on the tradition of game studies for its ontological narrowness and the neglect of the relevance of the creator in the quest for understanding the phenomenon of games and play.

Altogether, this work draws from nineteen sub-studies to explore *game development as experienced*, highlighting issues that frame creation practices. The study is exploratory utilising multiple methods capturing the voices and realities of the creators. The overview of the study is *ethnographically informed*: the data collection covers an extensive period in games from 2006 to 2016, bridging the sub-studies with field work and digital ethnography at multiple industry events around the globe and social media platforms.

The findings are distilled into five claims: 1) Game design is timely and particular, 2) Game design is value pluralistic, 3) Game design process is opportunistic, 4) Game design process is a plethora of ideas, and 5) Game design practice is natured and nurtured by the surrounding ecosystem. These theses form the grounding of *game design praxiology*, which in this work is defined as a pursuit of studying *games as created*.

This dissertation takes several levels of game developers' realities and experiences into consideration. Firstly, it addresses the changing environment and recent trends in the game industry painting a picture of a challenging field of action. Such an environment requires flexibility and adaptation from the creators making game development a constant learning process. One of the highlighted trends is the *casual turn* in games. This *normalisation of digital play* has had a wide impact on the ways games are created.

Secondly, this work explores the multitude of game design, and discusses how games can be many and always affected by the values and appreciations of their respective creators.

The notion of *game design value* is utilised in communicating the *pluralistic* nature of game design. Game design cannot be reduced to a single value, even though making a single game can be dominated by one.

Thirdly, the dissertation addresses the iterative nature of game development. Iteration as a core concept within game development is elaborated in this work into a larger notion of *opportunism* in design work. Opportunistic attitudes are visible on multiple levels of game work, and embraced as well as amplified within game creation cultures. Game developers do not only need to react to the changes within the industry, but take the opportunities that might come about within the development processes.

A big part of the study is revolving around the notion of a *game idea*. The level of ideas is more accessible to the outsiders of the creation cultures, but often misunderstood. The creative process of making games is collaborative and social, requiring creative input from several professions. The game innovation processes are not solely based on single overarching game ideas, but rather on various idea acts. This forms the fourth focus point for the dissertation.

Lastly, the work highlights how the larger ecosystem impacts on the game development practices. For the past decade, the game industry has expanded into a wide ecosystem of diverse actors and professions. This varying network of actors, including non-commercial actors, has its own role in nurturing the developments of the field. As one example, the phenomenon of the *game jams* is highlighted exposing a widely spread movement of creative communities emphasising diversity, co-creativity, opportunism, and prototyping cultures impacting a whole generation of game developers.

The work calls for further research within game design praxiology: as long as game making is not a part of the basic education in the same way as writing or drawing, games are in danger of remaining misunderstood as a wide and vibrant form of art and practice.

LIST OF ACADEMIC PAPERS INLCUDED TO THIS DISSERTATION IN THE ORDER OF THE PUBLICATION YEAR:

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CONTENTS

CHAPTER 0: THE JOURNEY

In spring 2010, I was attending an annual game gala in Helsinki. The party was mainly for Finnish game importers and sellers to celebrate the sales of the previous year, but many local game developers were also there celebrating their year of accomplishments. At the after party of the gala, I was invited to the headquarters of a Finnish game company where the discussions, like in many other occasions over the years, were expanding my understanding of the dynamics of the field. As in any good party, this too was filled with food, drinks, laughter and jokes as well as more serious discussions. The chatting about games and game development continued into the wee hours up until the point when the staff started to arrive at the studio to start their working day.

As usual, I had the opportunity to explain my research and discuss the topics that were current in games. In 2010, we were running an externally funded research project (Kultima & Alha 2011a) on the innovation processes of the game industry and much of my interest at that time was concentrated on the generation of game ideas. After sharing my thoughts on the topic, I received a surprisingly strong response. The CEO of the company, tired and still drunk, blurted out at me emotionally: “Your research is shit.” What could have been insulting and discouraging to others, for me it was one of the precious moments of my journey within the topic of game development practice.

My initial spark for game design praxiology was born already while working at the University of Lapland for the *Let’s Play* project (Hyvönen et al. 2006). In this EU funded research project, we were studying playfulness in education and the unique platform of a physical

playground for digital game playing. During Let's Play, I designed my first digital game that was partially executed for a learning experiment in a local school in Rovaniemi, Finland. What was intriguing to me was the challenge of bringing together the modern pedagogical models (see Hyvönen 2008; Kangas 2010) and principles of game design. There were not that many good examples to copy from and the field of educational games was criticised a lot for their poor quality. The situation in the field at that time made me wonder whether we researchers really understood enough of the process of creating games (Kultima 2006).

After the Let's Play project, I started working at the *University of Tampere Game Research Lab*, which has been my academic base for the ten-year quest motivated by the experiences of serious games. I have not yet returned to the world of educational games, even though I and my colleagues have explored the utility of play and games in various projects (e.g. Kultima & Alha 2011c; Nummenmaa et al. 2015; Tyni & et al. 2016). The game research work that I have conducted has all been within research projects with various intellectual goals and design pursuits. Despite all that, the goal of growing my understanding of the realities of game creation remained my main interest.

In my first project at the University of Tampere, *GameSpace* (2006-2008), we examined the design and evaluation methods for casual mobile multiplayer games (Paavilainen et al. 2009). Looking at the notion of *casual* in games was one of the most interesting academic explorations on that project for me. However, more pressingly, I was interested in the creativity methods and ideation tools that game developers had or could use to improve their production processes also within this new area. In 2008, I had my first trip to the *Game Developers Conference* and the positive experience of this huge industry get-together eventually led me to prioritise my travelling to industry events instead of academic seminars and conferences on games.

Still, many of my collegial discussions have happened at academic conferences. For my extensive travelling, I have also attended many scholarly meetings, seminars and conferences, such as FuturePlay 2007, FuturePlay 2010, DiGRA 2011, DiGRA 2016, Nordic DiGRA 2012, FDG 2015, ICA 2016 as well as almost all of the Annual Spring Seminars of Game Research Lab. On a train from the DiGRA 2011 conference, I was discussing my research with a fellow game researcher who shared an interest in design practices. As we chatted, I realized how my main "reading" were the developers themselves. The academic books and articles I had read so far and the research presentations I had listened to in the field of game studies and creativity research did not provide an exact fit for my enquiry. That research was indeed "shit" to some degree. It was impotent in explaining the thoughts and ideas that arise from the discussions with the practitioners and the questions that I was personally interested in. Reading people was more fruitful in expanding my understanding in the realities of digital game development, which was a young field of design. It took me a while to understand that this in itself was an important part of my research.

Since my colleagues at the University of Lapland were studying the creative learning processes, I was interested in exploring the general theories of creativity – and that

work carried over to the GameSpace project. Later, in 2011, when I was gathering data on the playful environments of game studios, I bumped into an open comment again on my interest in idea generation. While we were touring around the studio, I asked about the meeting rooms and interior. Many of my questions were about facilitating idea processes. The representative of the company in San Francisco then stated “You ask a lot about brainstorming”. I have later learned why an emphasis on brainstorming in game development is not the most fruitful approach. To some extent, the reading of academic theories, especially theories of creativity and brainstorming, had created lenses that were hard to brush off. Many of those theories did not help me in my pursuits. In many cases, they were not only unhelpful, but they also shadowed me from seeing other important issues in the creative lives of game developers.

Within my ten-year research period, I have explored various topics on games and play, but the main thread has been the *creative practices of game developers*, and my empirical perspective has been built lengthily on the developers’ self-reported views: interview studies, surveys and informal discussions provided a picture of *game development as experienced*. My research has sought to put together an understanding of the landscape of the context and ethos of the game work, and beyond. In addition, it has been a struggle to find a Swiss Army knife theoretical framework. The topic and perspective I have chosen casts such a wide network on theoretical practices that it has been impossible for me to ensure that all the stones have been turned. It is also exhaustive to go through very different disciplines and disciplines that I have no prior understanding of, so I am left feeling that I have not even scratched the surface of this multifaceted topic. Then again, one must admit that research is always tied to the practical limits of being a human being. I just need to take a break now and reflect on the studies that I have conducted so far.

The reason why I found great value in the bluntness of the Finnish game developer at that particular after party is that theories conducted by others on other fields can take you only so far and the pre-theoretical thoughts of practitioners can only be helpful if they are actually voiced. As it is not the main job for the developer to help out researchers to see the dominant, trivial factors in their work, it is our job to value when they get frustrated with us – that is valuable information. I like to believe that this bluntness, which was properly apologised for in an email later on by the developer, helped me to see the value of my work. At that moment, I was guided by the micro-level examination of the creativity studies and efficiency discussions of management research (and perhaps also other fields that I was flirting with). I had been blind to the personal and emotional level of the ideas as well as their context. This incident, like many others later on, has helped me to formulate questions that *matter* for *game development*. Starting with a topic of brainstorming and ideation, I started to steer away from the action itself towards more of the creative ecosystem and context where these people were working.

In my exploratory research, I have tried to do what Stebbins (2001) has encouraged, to “see the forest before the trees”. Even though a researcher cannot cover the whole ecosystem of theories, there needs to be a test of context if you care about the quality of your intellectual

enquiry. Putting my brainstorm research in this wider context has made my research more grounded. At the same time, it took much longer for me to finish this book.

Over the years, I have indeed learned a lot about the context of the creative practice of game developers. I have enjoyed the multitude of chats with the practitioners and appreciated the wide variety of industry conference presentations, gradually forming a view of my own. This journey has been paved with various unforgettable moments with the game developers (see some of them captured in Figure 1). I started as an outsider and ended up being weaved into the very fabric of the industry. My work at the Finnish Game Jam and Global Game Jam organisations has given me a certain role in the ecosystem expanding my position as an educator and a scholar. The journey has not been easy. Some struggles that I have been through are tied to the difficult route as an academic exploring an area that is less interesting to others – but some struggles have to do with the pain that any first or second generation game professional has had to face on their paths. Digital games have slowly risen from the marginal and belittled medium to mature and versatile communities that have economic and societal relevance. If there was not already a lot to explore, the sphere of digital play and games has expanded into multiple directions, all deserving academic attention.

Even though the gap between research and practice might always remain (cf. Bonsiepe 2007), it would be important for other game researchers to also get the supreme gift of drunken, honest Finnish game developers who do not care about expressing their ideas on the conceptualisations of us scholars. What I have learned is that being a game developer is neither glamorous nor as simple as it might seem from the perspective of outsiders. The simplification that game scholars and game design books might do is not always helpful in that respect. Game developers get to do what they love, with people they feel connected with, but it is hard work and requires skills that are sometimes difficult to train and maintain. People struggle a lot, and it is not only working conditions or poor management that cause that. It is in the depth of the fabric of the whole industry – the young age of it, the flexibility that is needed, the respect that had to be earned, the diversity that is not acknowledged enough, the economic struggles, the living stories of the developers who are left unsung and the changes that stress us on the outskirts of the ecosystem as well. It is a challenging, yet rewarding, area to be in. Every accomplishment is worth celebrations, and many are in fact also acknowledged as I have been able to witness and participate throughout my research journey (Figure 2).

I raise my hat for all of those who are doing game creation on a daily basis as well as those who work hard to bring about the next generation of these creatives. Be it that you are trying to contribute to the field of game design as an indie or as part of a big company, trying to make a difference as an intermediary within the ecosystem of the industry or as a scholar offering your time to the added understanding of the field. There are great challenges to embark on. In order to make this journey easier for all of us, it is important to understand *games as created*.

0.1 FROM GAME STUDIES TO GAME DESIGN RESEARCH

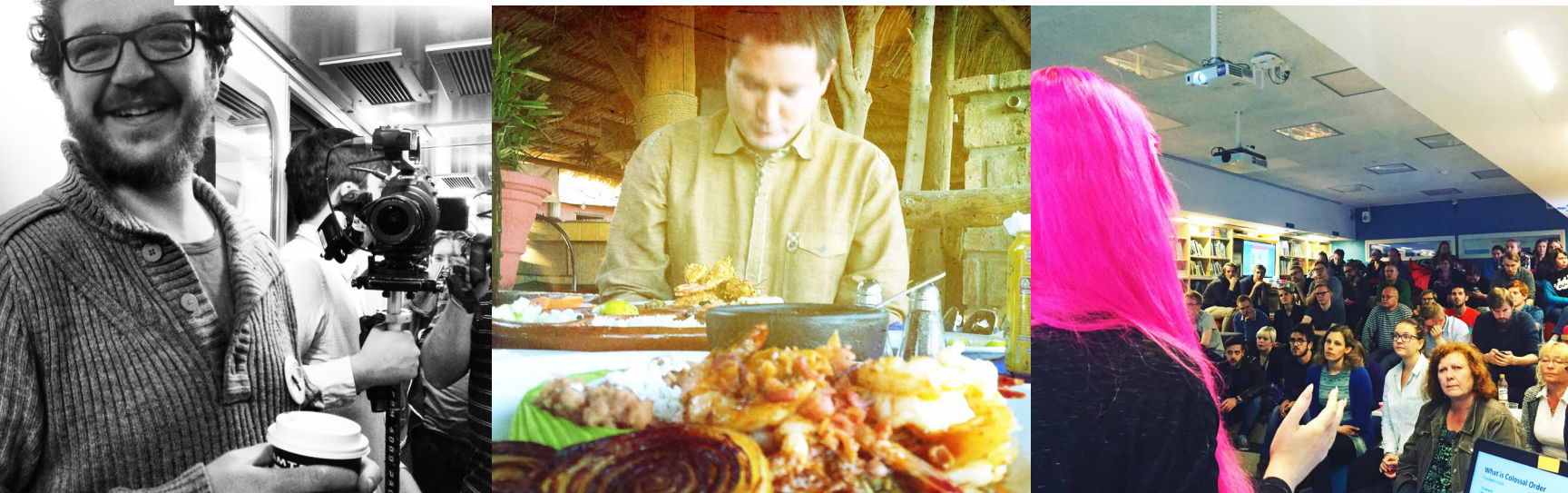
For social and practical reasons, my research is positioned in the field of *game studies*. In the following, many of my blind spots may come out from the practice of this multidiscipline (Deterding 2016). Game studies is a very young field within the overall picture of the history of science – and is bound to have some gaps. I happened to land in game studies in the very active definitional and identity building era. In 2008, Staffan Björk (2008) wrote how the "interest in research on game-related topics has grown strongly in recent years following the widespread success of computer games as cultural and commercial phenomena" and how "a certain level of friction has existed regarding what constitutes proper methods and research questions". Björk was searching for "axis mundi" for game research. He suggested that the different research interests within the rising academic field were easily mapped on the three concepts *games*, *gamers* and *gaming*. Also in 2008, Frans Mäyrä (2008) conceptualised how the focus of game studies lies in the interaction between the game and player, informed by their various contextual frames. In his introductory book to game studies, the intersecting views were grouped into 1) *study of games*, 2) *study of players* and the 3) *study of the contexts* of the previous two.

The rise of the humanities and social sciences oriented game studies has been visible in the growth of the academic communities, such as DiGRA and journals similar to Game Studies. In 2001, Espen Aarseth (2001), the Editor-in-Chief of Game Studies wrote that the year 2001 can be seen as "Year One of Computer *Game Studies* as an emerging, viable, international, academic field." With a perhaps provocative ludological tone, Aarseth also declared how game studies should exist as an independent academic structure because it cannot be reduced to any of the existing fields (Aarseth 2001). Since then, there has been a surge of different kinds of game related studies from various academic perspectives and the construction of a multitude of game research conferences and other academic venues (Melcer et al. 2015; Mäyrä et al. 2013).

It is typical that the notions of *game studies, games research* and *game research* are used interchangeably. While constructing his "year one" declaration, Aarseth (2001) refers to the important and inevitable multitude of contributing disciplines as "we all enter this field from somewhere else". He lists such fields as anthropology, sociology, narratology, semiotics and film studies as a few relevant examples of the academic origins of game researchers. Among other actors within the game academia (e.g. Waern & Zagal 2013), Mäyrä (2008; 2009) considers the multi- and interdisciplinary nature of game studies as richness and challenge of the community. In his reflections of multidisciplinary research work, Mäyrä (2009) lists combinations of researchers from humanities and social sciences as well as the combination of sociocultural game studies with technical or engineering-oriented research work as examples. He concluded that the role of interdisciplinarity within and around game studies is somewhat mixed and ambiguous (Mäyrä 2009).

Mäyrä, Van Looy and Quandt (2013) conducted a survey on the game research communities of DiGRA, ECREA and ICA, enquiring about the disciplinary background,

FIGURE 1. MOMENTS WITH GAME DEVELOPERS AND INDUSTRY PROFESSIONALS.

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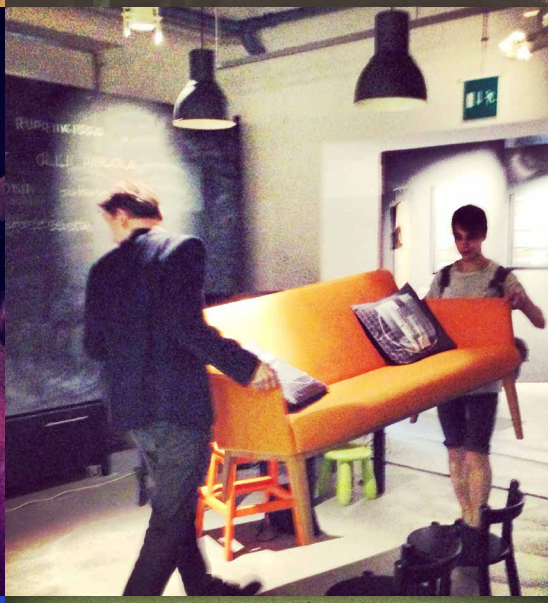

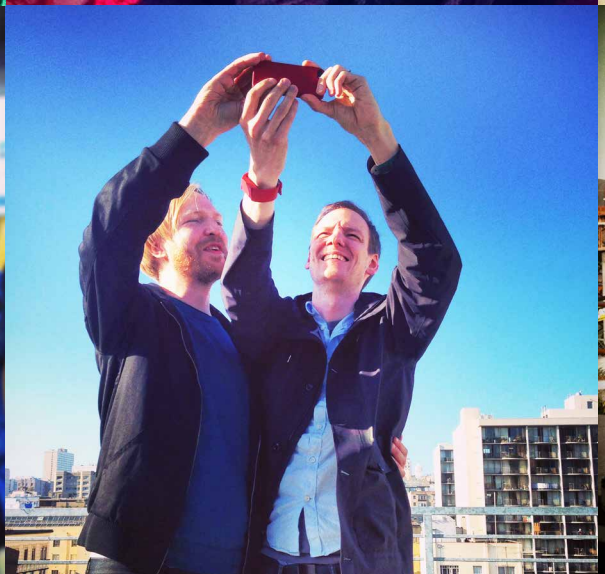

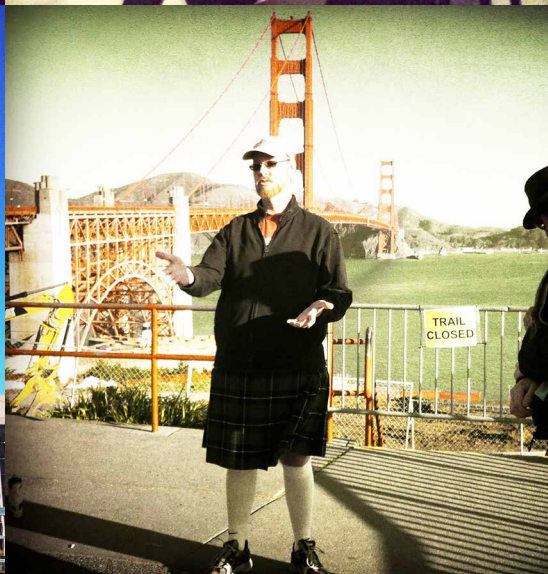
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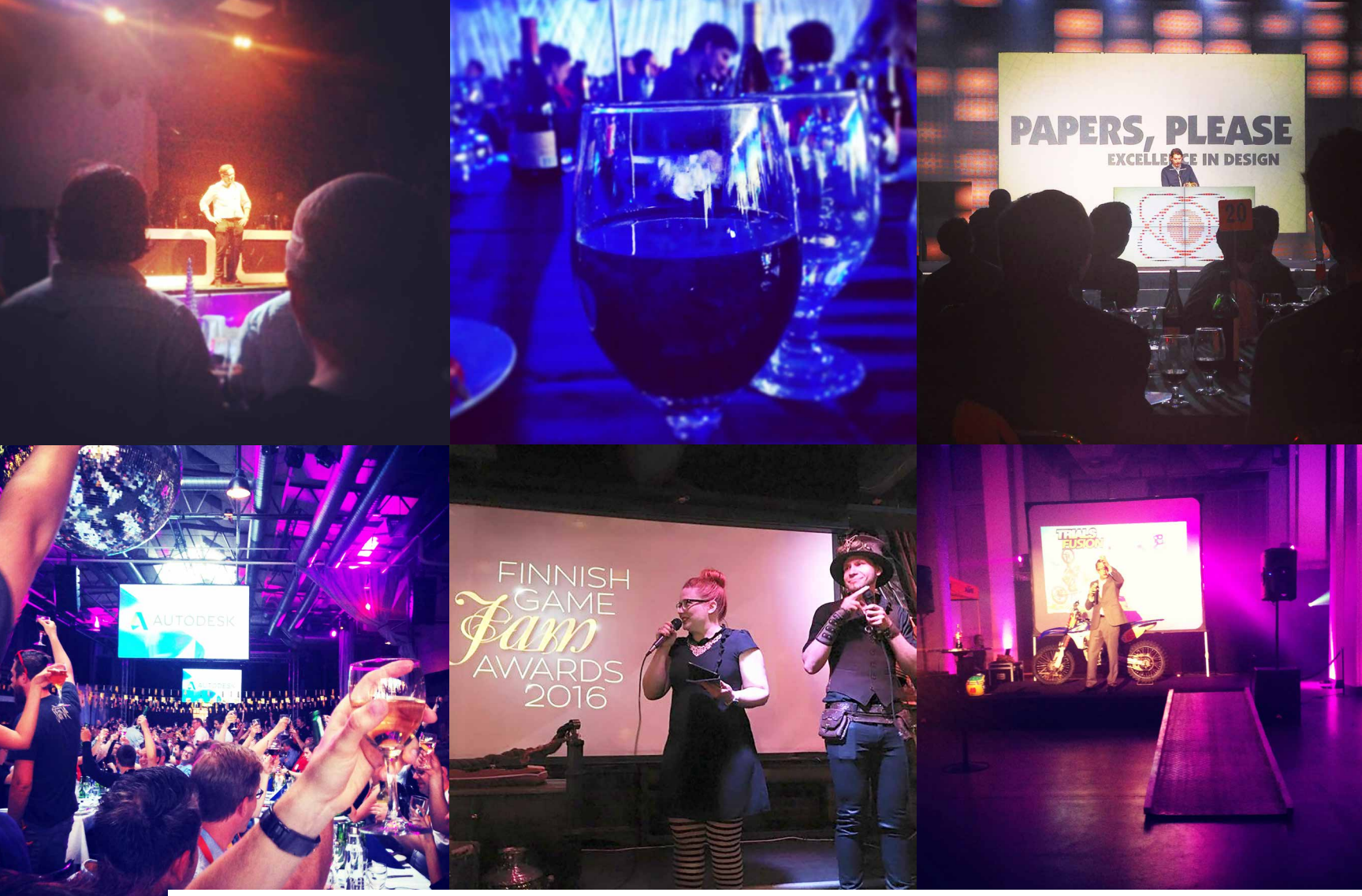


FIGURE 2. CELEBRATING GAMES. SNAPSHOTS OF VARIOUS DEVELOPER GALAS AND STUDIO PARTIES IN FINLAND. THE US AND SWEDEN.

current research field and identification as a “digital games researcher”, among other issues. They concluded that there is no single disciplinary field that would play a key role in organising the academic identity of contemporary game researchers and that the research on games and play is highly multidisciplinary and dynamic (Mäyrä et al. 2013). Continuing this type of reflective work, Melcer et al. (2015) conducted a data driven examination of the 15 years of game research. By evaluating the keywords of over 8,000 game research papers, they identified 20 major research themes and seven distinct sub-communities. Their results support the commonly held assumption that games research has different clusters of papers and venues for technical versus non-technical research.

Many reflections on game studies are still narrow and affected by the personal academic interests of the researchers themselves. Aarseth’s early manifestation on game studies highlighted the perspective of humanistic and social sciences collaboration. The categories and ontologies of game studies by Mäyrä (2008) as well as Björk (2008) model the research interests of game researchers around the artefact and the users – leaving the other issues as “context” or the interplay of the two. Following these early drafts and the most active researchers’ disciplinary backgrounds, game studies has continued with an undertone skewed towards the humanistic and social sciences. But in general, the epistemic hunger for understanding the phenomenon of games has not been limited to what these larger disciplines can provide, so the community of game scholars has been more colourful than that. Yet many configuring theories and concepts come from the disciplines of the pioneers. The canon of game studies is crafted by a narrower group of academic actors and many of the defining literature is “unanimously written by designers and humanities scholars” (Deterding 2014).

With the help of general theories of interdisciplinarity, Sebastian Deterding (2014; 2016) has been reflecting on the interdiscipline of game studies. He explains how the “friction” pointed out by Björk (2008) is not unique to game studies, and how, in general, the “initially enthusiastic interdisciplines and young interdisciplinary researchers” quickly encounter various challenges including the friction due to incompatible epistemic cultures. By dissecting the models of overcoming the disciplinary boundaries into the multi-, trans- and interdisciplinarity of different levels, Deterding characterises game studies as a narrow interdiscipline or even encyclopedic multidiscipline at its best. Furthermore, he argues that the current development and direction of the field can be considered as narrowing or differentiating into multiple sub-communities – pattern recognisable from other interdisciplines (Deterding 2014). In 2016, Deterding (2016) positions game studies as a sub-community within a larger community of game research.

Melcer et al. (2015) identified ‘game design’ as the most used keyword among the over 20,000 unique keywords presented in 8,207 game research articles. While the mere weight of this finding could be telling, it is hardly simple to interpret. ‘Game design’ can be connected to a wide variety of research papers for various different reasons. Be it a technical oriented paper of an inventive algorithm or a study of a game forum discussion – if the authors even vaguely addressed the potential impact of the study into practice,

the keyword can be found centrally. The authors themselves do not need to be identified as design researchers. As there are some works on trying to define and examine design, it is not commonly shared and there is no wide understanding of what we even mean by 'design' in the larger field of game studies. This construct is not as discussed as, for instance, the conceptualisations of 'game' and 'play'.

Game design has been studied from different angles and through various academic frames within the interdisciplines of game researchers – scattered in different publication venues. Some of these have concentrated on game development processes, even though many studies seem to be tied to the humanistic lens providing, for instance, artefact analysis. Despite the societal and economic impact of digital games (see Kerr 2017), *game design practices* have gained surprisingly little attention within the study of games.

For instance, Ted Tschang (2005) has been one of the authors looking at developer practices. In one of his studies, he has concluded that there was much room for systematising development processes in game studios based on the analysis of the game design post-mortems of that time. Tschang represents a management studies perspective and he has published papers on game development processes within the field of management studies since 2001. For instance, he has also examined how the game development groups are organised in different ways from a model of one dominant creator to so-called "cabals", both of these having strength and weaknesses from the perspective of game innovation processes (Tschang 2007). Supporting observations on differing practices also surface from my data from 2006-2016.

In a similar manner, Mirva Peltoniemi (2009) has been contributing to the body of knowledge of game development from the perspective of management studies. In her 2009 doctoral dissertation drawing from data collected from Finnish game companies, she concluded that the dynamics of the game industry differ from the propositions of the industry life-cycle theory. According to her, the game industry was not slowing down on innovation, and the game development had remained an unconcentrated industry. This seems to hold still, but it is difficult to analyse game industry as a global whole (see Kerr 2017).

Some researchers have briefly visited or commented on the design processes or the role of a designer also in the field of game studies, even though this is usually a rather marginalised approach. For instance, Wilson and Sicart (2010) made a sharp observation on analysing professional game design literature and contested the narrow view of user-centred design by introducing a concept of "abusive game design". It is important to note that game creation is not only a commercial endeavour, and the game design process is not just a route to pleasing customers. This adds complexity in drawing generalisations within game design research.

What comes the closest to my research is the work of Swedish researcher Ulf Hagen. In his study, Hagen (2012) mapped out the ideation practices in commercial AAA videogames productions in Sweden. His main contribution was an observation that the game studios

have moved away from “big design up front” and were instead using a variety of verbal, visual and audial tools to communicate their visions. Based on my research, these practices are still widely varied among different companies and creating one big picture of industry is difficult – yet the trend of valuing prototype-driven processes is also visible from the perspective of my studies.

On a larger scale, some studies have been focused on the history and development of the game industry. For instance, Izushi and Aoyama (2006) have been writing about the birth of the industry in different countries: Japan, the US and the UK. Some studies examine the game industry within political economy. For instance, Kerr (2017) has been looking at the game industry ecosystem from the perspective of global markets and corporation activities. To me, the more interesting unit of examination has been on a smaller scale highlighting the experiences of single developers.

Designers have also gone the extra mile to explicate their conceptions of the game design. Due to the young age of the field, it is not rare to see these design guidebooks written by the industry actors cited in the academic papers – I have also utilised a few of them in my papers as well as in my teaching. I have kept the pile of the “design bibles” on my desk – near enough for fast referencing (see Figure 3). Some of the books can be even considered as part of the “canon” of the game studies. Katie Salen’s and Eric Zimmerman’s book *Rules of Play: Game Design Fundamentals* (2003) discusses the different schemata of game design (rules, play, culture) and is perhaps one of these. Written for the designers, the book is widely used by the young field of researchers – and often perhaps even misunderstood by the research community (see Zimmerman 2012) due to the differing epistemic needs of the industry and academia (cf. Bonsiepe 2007). Conceivably one of their most cited original notions is the notion of “second order design”. This is to illustrate the indirect nature of designing games as computer mediated experiences: “game design is a second-order design problem. A game designer designs the rules of the game directly but designs the player’s experience only indirectly” (Salen & Zimmerman 2003). However, the lack of theoretical exposure to other design disciplines might lead to this exceptionalistic view. In a discussion about Twitter in 2012, Eric Zimmerman retrospectively contemplated that “Perhaps design is always about second-order problems.”

Another popular game design guidebook is Jesse Schell’s *The Art of Game Design: A Book of Lenses*. Similar to *Rules of Play*, it presents different schemata to interpret and approach game design. While Salen and Zimmerman (2003) build their conceptions around the artefact and the player’s (meaningful) experience, Schell (2008) goes through different topics from game experience and elements of a game to the topics of the tools and approaches of the development process all the way to the self-reflection of the designers themselves. Schell’s book is providing an account of his personal design cognition: varying, yet not exhaustive, lenses for working with game design. Game design accounts by experienced developers such as Schell’s might seem imperfect from the academic perspective as they are lacking in the systematic view and epistemic transparency, leading to an embrace of subjectivity. Such books might end up criticised on those grounds if

FIGURE 3. PROFESSIONAL GAME LITERATURE PILED ON MY OFFICE DESK.

taken into the academic contexts. However, these accounts might be more useful for the practitioners than theoretically organised academic views, which in instead might help organising the fabric of design education.

Many, if not most, research issues within game studies could be framed as *design research*, even though this framing has not been popular. The construction of the understanding *games as created* is usually secondary to the heuristic efforts of mapping the phenomenon of games instead of the phenomenon of design. Exactly because of this, Kuittinen and Holopainen (2009) have been bridging game studies and design research by utilising the works of Simon, Schön, Lawson, Löwgren, Stolterman and Visser among other design theorists. Kuittinen and Holopainen (2009) analysed professional game design literature using conceptualisations of 'design situation', 'design problem' and 'design solution'. Kuittinen and Holopainen (2009) argue that game design should be studied through models constructed by design theorists and that such an approach is not present enough in the game design literature. As the interdiscipline of game studies is narrowing, Deterding (2016) is also calling for 'design orientation' in game studies. I suggest that "orientation" is not even nearly enough; instead, we should push game studies more into the interplay with the various traditions of design research.

0.2 FROM DESIGN RESEARCH TO GAME DESIGN PRAXIOLOGY

There are several ways to categorise *design research*. Perhaps one of the most famous and often used typology is that of Christopher Frayling's (1993). Frayling, adapting Herbert Read's distinction about art education, divides research into three different categories: research *for*, *into* and *through* (art and) design. In a similar way, Keiichi Sato (2009) differentiates two ways of using the word design research. According to Sato, design research can have at least two distinctive meanings. On the one hand, it might denote the practice of developing information for a particular design project and, on the other hand, it indicates the practice of developing a generalised and structured body of knowledge (academic research). Furthermore, Sato's typology for design research divides the academic design research into theoretical research, methodological research, experimental research, field research and case studies (Sato 2009). Gui Bonsiepe (2007) distinguishes *endogenous* and *exogenous* design research. Endogenous design research is initiated spontaneously from within the field of design, whereas the exogenous design research is interested in the design as an object of scientific enquiry. For Bonsiepe, endogenous design research is primarily instrumental and tied to design projects and embedded into the design processes similar to Sato (2009). However, Bonsiepe hopes for the endogenous design research to eventually reach for a more general level of knowledge similar to exogenous design research. For Bonsiepe, the danger of exogenous research, then again, is to fall into the normative account of design disconnected from practice (Bonsiepe 2007).

According to Nigel Cross (2007), the desire to "scientise" design emerged as early as in the 1920s and surfaced again in the design methods movement of the 1960s. The Conference on Design Methods in 1962 is generally regarded as the launch of design methodology as an academic field and the 1960s has even been heralded as the "design science decade" fashioned by the positivistic attitude on the potential of the combination of design and science. Cross (2007) further discusses how terms such as 'design science' and 'science of design' bear a different meaning: the former refers to a search for a single method for a science-like design and the latter to the study of designing as an academic endeavour. The modern term 'design research' is for Cross (2007) a goal of "development, articulation and communication of design knowledge". Furthermore, the sources of such knowledge to him are to be found in people, processes and products. His taxonomy for the field of design research falls into the following three main categories: design epistemology (study of designerly ways of knowing), design praxiology (study of the practices and processes of design) and design phenomenology (study of the form and configuration of artefacts). To Cross (2007), the challenge for design research is to be interdisciplinary and disciplined simultaneously – a "paradoxical task of creating an interdisciplinary discipline." (Cross 2007). Even though I tap into all of these, I have chosen to call my research *game design praxiology* since it has been the main thread in many of the examinations I have conducted. Furthermore, practice in itself is connected and configured by the other two fields of enquiry.

Perhaps depending on the disciplinary background of a researcher, design research can seem an ill-fitted and un-organised academic field. Blessing and Chakrabarti (2009), coming from an engineering background, identified the common challenges of the design research as 1) lack of overview of existing research, 2) lack of use of results in practice and 3) lack of scientific rigor (Blessing & Chakrabarti 2009). It could be argued that the issues pointed out by Blessing and Chakrabarti (2009) can be connected to the challenges of many interdisciplinary efforts.

Blessing and Chakrabarti (2009) have also suggested that design research has passed through three overlapping phases: *Experiential, Intellectua*l and *Experimental/Empirical.* In the Experiential phase, senior designers draw from their personal experiences of the design processes, in the Intellectual phase some theoretical constructs for design and many methodologies, principles and methods were formed and in the Experimental/ Empirical phase empirical studies were undertaken in order to gain understanding of the actual practices. Such a narrative of theoretical progress seems to be in line with the understanding of the current field of game design research – even though Blessing and Chakrabarti positioned the development of the general design research already in the previous century (Blessing & Chakrabarti 2009), time well before the digital games. I found this account very fascinating, even though I have actually failed to find out on which data Blessing & Chakrabarti actually base this claim. Nevertheless, their ponderings serve a purpose of providing a narrative of perspective.

Despite the fact that ‘game design’ bears several meanings, there is a lot of explicating to do and room for theoretical, empirical and experimental work addressing the different areas of game design. One area of that is to keep on answering to the definitional question of ‘game design’. Anecdotally, when in 2015 I asked game developers to describe their conception of game design on Facebook for classroom purposes, the responses varied vastly on the ontological level of the content. For one, ‘game design’ meant “emotion engineering” or “largely communication” whilst for others “everything that goes into a game is more or less game design.” I had already observed within the field such a variety of views and the use of the word. I have not coined my own account on the notion, but submitted to the diversity of the connotations of the practitioners.

However, the word ‘design’ is found to be complex in the field of design research in general. As more and more design fields are emerging, it is becoming increasingly difficult to address the area as unified. As a design historian, John A. Walker (1989) pointed out already in the 1980s how ‘design’ has more than one common meaning: it can refer to a process, the result, the products or the look and overall pattern of a product. The term has also undergone some historical changes from the Renaissance ‘disegno’ meaning ‘drawing’ to the industrial revolution and the introduction of the ‘designer’ all the way to the value-laden ‘design’ and ‘designer’ of the 1980s (Walker 1989) continuing up to today.

The scholarly meaning of the word ‘design’ has been dominated by the views of industrial design and architecture. By looking at the definitions of the design, Walker (1989) concluded that for many scholars at that time, design was equal to industrial design. Such an emphasis on material and mass production might be one of the reasons why digital game researchers find design research difficult to utilise. There is also something unfitting and conflicting in the colloquial use of ‘game designer’ within the games industry. Depending on the project, a social constellation of the team and studio, a game designer might be in control of the design decisions, or act as a creative mediator similar to the producer in other productions. In some game development studios, the title of a game designer might be completely absent. The design is conducted by the whole team of game developers. The aforementioned diversity has continued to hold throughout my entire study period in a way that design books do not truly manage to capture.

Throughout this book, I use ‘game designer’ and ‘game developer’ sometimes interchangeably. ‘Game developer’ refers to the larger group of the creation team including artists, programmers and everyone contributing to the creation of the game. Even though ‘game designer’ is a title on the game industry, the role in the actual production varies. The meaning of ‘game designer’ has also evolved among the meanings of other titles of the production throughout my study. In the early years of my research, the work tasks and responsibilities of a game designer were sometimes the same or overlapping with that of a game producer. Nowadays, there might be more of a shared understanding of what a game designer’s job is, but at large, the differences still hold. In a bigger company, the variety of titles reflects the organisation of the work and, in the smaller companies, the titles might be only approximations of the areas of responsibilities as “everyone does everything”. As

the ethos of the creative work of game developers for the duration of this ten-year period has been the creative collective, it has been important for me to not only concentrate on the titles, but also on the creators as a larger group. The terms ‘game designer’ and ‘game developer’ refer to the ‘designer’, who is part of the creation process of the game with their creative input. However, I also use the term ‘game creator’ to transcend the notion of game designers from the boundaries of commercial game development and tackling its multitudes.

The loose historical account of the progress of the design research by Blessing and Chakrabarti (2009) is far from being elaborate enough in explaining the whole picture of the historical development of design research. In their examination of the shortcomings of design research, Blessing and Chakrabarti (2009) are not completely clear as to whether the issues they have raised are fatal to the purely academic endeavours or also to the practice itself. Similarly to Aarseth, Cross (2007) warns us on “swamping the design research with different cultures imported from either the sciences or the arts”. Even though there is a need to utilise different disciplinary traditions, Cross wants us to realise how the design practice has its own strong and appropriate intellectual culture. Somewhat provocatively, he claims the epistemology of science being in “disarray, and therefore has little to offer to an epistemology of design.” This claim is supported by Bryan Lawson (2005) since, to him, the study of what designers know “challenges our more conventional understanding of what makes good knowledge in ways that might be of interest and value to those in the information and cognitive sciences.” Such an understanding of the nature of design research should also be visible in the various design-oriented studies within the field of game research instead of taking for granted the epistemologies of more traditional disciplines.

At some level, approaching game design as design research changes the way we see game studies. The ‘design’, ‘designer’, ‘process’ and ‘practice’ have previously been a part of the box of “context” or otherwise in the periphery, whereas ‘game’, ‘player’ and ‘playing’ have been the dominate conceptual tools (see Mäyrä 2008, Björk 2008). Following the taxonomies, conceptualisations and categorisations of design theorists, we end up in a very different emphasis on theorising over games. From this perspective, the tradition of *game studies* could fall *under* the category of *game design research* and not vice versa. Most of the research conducted in game studies can be considered as *design* phenomenology studying the game artefacts and cultures around them.

0.3 THE INEVITABLE BIASES

Explorative studies and qualitative studies in general are dependent on the researcher’s abilities and affected by the potential biases, motivations and points of views. The perspective that a researcher has also has to do with timely matters as the world is changing. That said, in the 2010s, it has felt a mere impossibility to study game development without a bias or a point of view – this industry is wide and widely underresearched. As in this examination, I am reaching towards a general view on the nature of *games as created*,

it is important to discuss my biases and blind spots so that the researchers after me can make sense of the oddities that do not add up with their own perspectives. After all, in doing such an extended period of work, there are bound to be traces of the unique path that a researcher goes through as a human being.

First of all, many of my informants are working in the Nordic countries, especially in Finland. Due to my home being located in Finland and me being active within the Finnish game industry, this is something that has been inevitable. However, my travelling between 2006 and 2016 (see Table 2 in Chapter 0.5) has afforded me an expansion of the views from the Finnish industry and many intimate discussions have also been informed by other nationalities, such as Germans, Danish, Swedish, Americans or, for instance, Mexicans and Indians just to name a few. Altogether many game industry international and local get-togethers are multinational as the industry in many countries has also a high percentage of hiring personnel abroad. In Finland, the biggest studios might have had tens of different nationalities represented. Even though I have a Finnish bias in this study, I cannot claim that my studies would be only about the Finnish game industry.

My main interaction outside of Finland has been with the participants of game industry conferences (see Table 2 in Chapter 0.5). It is typical that the attendees of such conferences, as Game Developers Conference, E3 and Nordic Game are CEOs, CTOs, Creative Directors and others in leading positions. Many of them also travel to several conferences a year. I call them "conference nomads", as they wonder from one conference to another sometimes leaving very few days for staying in their home countries. Their work is very social: working with various representatives of the game industry ecosystem as well as stakeholders of their game projects. Basing my ethnography on industry events, I might have missed many voices of the shy and introverts of the industry – and people with less time and money for networking. This might have affected the emphasis on the passionate and community driven views on game development – it is not given that all game developers are equally passionate and form their social lives over games. Nevertheless, participating in local and smaller scale events has given me chances to also discuss with those who do not travel that much. I discuss my fieldwork in more detail in Chapter 0.5.

I started my career as a game researcher on the verge of *casual turn* (see Chapter 1). Examining this shift from both the academic and personal perspectives has impacted the topics I have focused on. The concept of *design values* (Chapter 2), for instance, might have never become my study subject had I been a traditional hardcore gamer or never worked on a project studying the emergence of casual games. Even though I have been playing computer games since I was little, I also have some personal tastes for playful products. I enjoy immersive and challenging games, but more habitually I play easy puzzles and casual mobile games. Sometimes I feel like I play way too little for my profession, but on average I play digital games much more than an average Finn. Throughout my studies, I have expanded my game experiences within the research projects, with my informants, colleagues and students, with my husband and relatives – for my personal pleasure, out of curiosity as well for professional growth (see, for instance, Figure 18 later in this book). It

is hard to say what kind of a player I would be without this path. My role as a game player has truly affected this study, but this study has also affected me as a player.

My research work in its entirety has been more focused on *digital games* instead of games in a larger sense. My informants are mostly computer game developers (usually referring to stationary computers), video game developers (usually referring to home consoles and handheld devices) or mobile game developers (usually referring to mobile phones). However, all these terms are used interchangeably and I have not made conceptual distinctions or compartmentalised these groups. In addition, I have not excluded the opinions of board game designers, roleplaying game- or larp designers nor indie game designers working with various forms of digital and non-digital technologies. There are differences between the domains of design for all of these groups, which also affects their creative work. In this writing, the level of examination aims at a more general level, but the bias is towards digital game development.

I have also been very active within the *game jam* community (more on game jams on Chapter 5), globally as well as in Finland. From 2010 onwards, I have been organising and participating in game development events (see Table 2 in Chapter 0.5) which form a culture of its own. As this participation has given me great insight into the hobby and indie cultures and also broadened my view over the countries in the leading positions at the game industry (such as the US, the UK or Japan), it is a certain bias that needs to be acknowledged. These biases are not only personal biases, but also biases of this era: I argue that 2006 to 2016 has been the era of game jams, Nordic game developers, casual games and conference nomads, and this is strongly visible in my perspective of game design praxiology.

My journey has not been easy and I have been on the verge of quitting the game on a regular basis. The personal shortcomings that one has, the feeling of not doing enough and the general feeling of loneliness have taken their toll. A particularly difficult year for me was 2014 when I did an outing on the gender discussion (as I previously did not want to highlight my gender) within the male dominated game industry and academia sharing my personal history at seminars and conferences. I received love and hate as I took a step into the middle of the aftermath of *GamerGate* (see Chess & Shaw 2016; Ruffino 2016; Butt & Apperley 2016) and the political discussions around it. Sharing my personal path from my childhood to the point where I was at the moment was not only personally hard to reflect, but also socially hard to share – similarly for others too (see Figure 4). Unfortunately, that very same year, my father passed away and I had to rush from the London Playful conference to the hospital in Northern Finland to say my last words to a man I deeply admired as a scientist and a playful human being. My dream of sharing this book with him was shattered to pieces. It took a while for me to recover from the struggles of that year.

In 2016, I spent my summer holiday putting together the first draft of the chapters of this book. While others were outside running around with *Pokémon GO*, I was stuck within four walls looking at the work I had conducted as well as reflecting on my goals that I

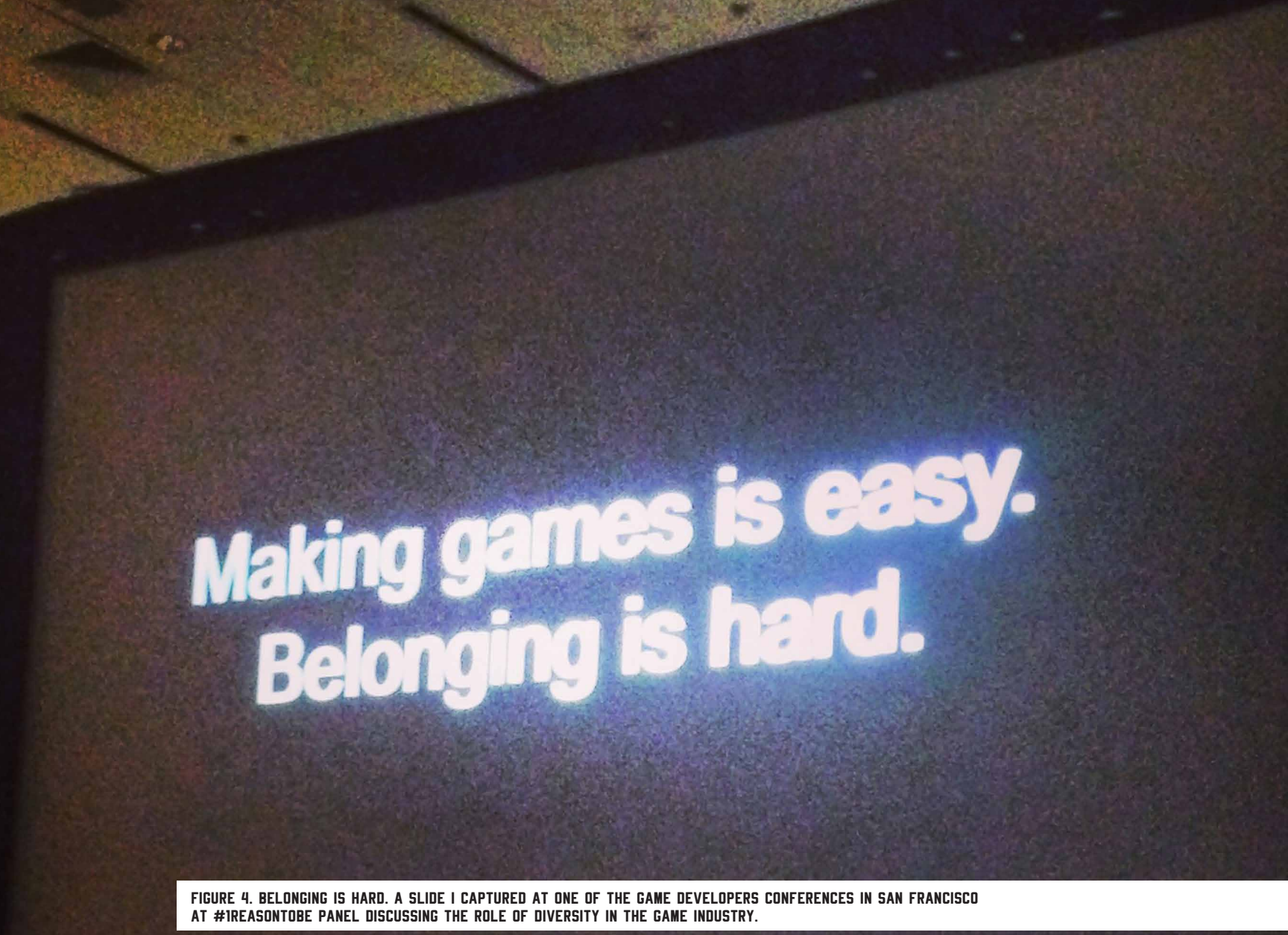


FIGURE 4. BELONGING IS HARD. A SLIDE I CAPTURED AT ONE OF THE GAME DEVELOPERS CONFERENCES IN SAN FRANCISCO AT #1REASONTOBE PANEL DISCUSSING THE ROLE OF DIVERSITY IN THE GAME INDUSTRY.

believed were still to be achieved. I, as many researchers focusing on new fields, felt like I had only touched a tiny part of a big whole. I shared the overview of my studies in a small presentation at the joint conference of DiGRA and FDG 2016 in Dundee. Even though the presentation was among other presentations on game industry and development, I felt the heavy baggage of the journey in the mid-presentation feeling deeply alone. The discussion after the session was concentrating on games as business and much less games as created. I felt powerless to voice my perspective and weak in representing my cause. As I was sitting alone reflecting on the status of the discipline, neglecting the design approach, I became immensely sad. Even after ten years in this field, things had not improved. I went back to my hotel room and after some thinking decided to express my feelings via social media. The feedback and support were overwhelmingly positive. I not only heard that people found my research important, but some of my colleagues in different universities had felt the same and walked the same paths – some left the path due to similar reasons as mine. It made me think about the importance to be open and transparent with the journey of one's work. This is one of the reasons why I have chosen to report my studies from a very intimate perspective. I know there are others who do not have the courage to expose themselves in this way. I selfishly hope that this book can help them continue contributing. We need everybody's input.

When I finished my master's theses on theoretical philosophy in 2008, I promised myself I would not be so deeply involved with my PhD topic. Coming from a field that had very little to offer to the study of the practice of game development, I thought that I would be safe. Before taking the job at the University of Tampere Game Research Lab, games were a casual hobby and my academic passion rested in philosophy. Eventually, this topic also proved to be philosophical and I found threads of relevance to my background, which I intend to explore further if only life would afford such. Moreover, game design praxiology has been with me for a decade, it has grown on me, defined me and kept me interested. I wish I could have done more, been smarter and found greater results. That said, I could not have done a better job and that is such a liberating and flooring statement at the same time. The limits of this study are sourced from my limitations.

0.4 FIVE THESES

The overall result of my study is represented in the form of claims. These five theses are the seminal points that come across my studies and affect the numerous levels of game design practice. I argue that these theses need to be taken into account, either as a foundation or explicitly rejected claims, in any future game design research. In a way, these are the different dimensions of the ethos that affect the practice and I invite the claim that these are important background theses for *game design praxiology*.

THESIS 1: GAME DESIGN IS TIMELY AND PARTICULAR
THESIS 2: GAME DESIGN IS VALUE PLURALISTIC
THESIS 3: GAME DESIGN PROCESS IS OPPORTUNISTIC
THESIS 4: GAME DESIGN PROCESS IS A PLETHORA OF IDEAS
THESIS 5: GAME DESIGN PRACTICE IS NATURED AND NURTURED BY THE SURROUNDING ECOSYSTEM

First of all, it is important to understand that a topic of design is always somehow tied to time and the nature of design as *particular*. There is no single artefact or project that would be identical; each project seeks to change something. The game projects are conducted in the context of shifting technologies, tools, user cultures and values – it is a changing field for the designers and by the designers. Design is always somehow influenced by the personal value and belief systems of the makers: these guide the design decisions and affect which final forms the artefacts will take.

It is also important to note that the passage from an idea to an artefact is not straightforward. An experiential product needs to be *developed* through the iterative process of testing and tweaking. In this process, the practitioners discover challenges and opportunities that were not obvious in the ideation. Moreover, it is not only the preproduction that counts: ideas are needed for solving different design problems throughout the whole production. There are never too many game ideas, even though very few of them will become products. It takes a flexible mind and a lot of patience to finish a game project. Such flexibility is also needed beyond the production process of a single game.

Finally, the whole practice of making games is not standing in a void – it has origins and current ecosystem dynamics which both shape the future. In the end, the creative realities are affected by many external factors. The success of the practitioners is dependent on not only their own efforts and supportive organisations but also what kind of hobby and education landscape preceded and surrounds them.

My five theses are mostly not based on direct observations of people working on their projects, but on the game developers own sensemaking of their work. In this way, my theses are about *game development practice as experienced*. These five these are elaborated in the following five chapters.

0.5 DATA, PROJECTS AND PUBLICATIONS

Academia also has its ecosystem and contexts. In order to understand my input for this topic and evaluate my work, it is good to know where, when, how and with who I have conducted my studies. Many PhD dissertations are neat, short termed, single study explorations. My work has been spread over several years and projects. Instead of one full grant given to me to conduct the exploration on the topic of game design practice, I have been conducting my work under several different projects and with the help of different funding sources. This kind of path can be considered typical for a Finnish game researcher. If utilised in a smart way and with persistence, it can create interesting concatenated paths, but mostly these paths are filled with compromises and logistic choices that one would not do in an ideal world. It takes stamina, dedication and creativity to overcome the challenges.

I have been relatively lucky in funding my studies, even though very little of these directly supported my topic. I have been funded directly or indirectly within the following projects starting as early as 2006: GameSpace 2006-2008 (Tekes, University of Tampere and

companies), Games and Innovation (2009-2011) (Tekes, University of Tampere, University of Jyväskylä and companies), GIIP: Game Industry Innovation Processes (2010-2011) (Tekes, University of Tampere and companies), Hybridex (2012-2014) (Tekes and University of Tampere), and University of Tampere (2014-2016). Most of the industry events and conference trips were self-funded as well as many interview trips and other fieldwork events and their travel. For the finishing stage of the study, I received a fixed-term position as a doctoral student at The School of Information Sciences for six months. During my teaching position at the University of Tampere, I have also been able to contribute to my research, but in a smaller portion. The final push was conducted in summer 2016 and 2017 mostly on my summer holidays. This narrative is common to many Finnish researchers and it is important to acknowledge when reading these results.

During the research projects and overall study period, I have been collaborating with various actors within academia and with game industry representatives in Finland and abroad. Official industry partners in the research projects have been: Nokia Games Publishing/ Nokia, Veikkaus (Finnish National Lottery), Digital Chocolate, Ixonos, Universomo, Mr. Goodliving/RealNetworks, Kuuasema, Moido Games, IGIOS, Sauma Technologies and Sulake but my actual exposure to industry has been much wider throughout the ten-year period in informal gatherings and non-research related collaborations without any ties to funding. Many of the listed companies no longer existed in 2016, but the developers from these companies have continued at other game companies. I regard the collaboration at the company level less configuring in my studies than the individual level connections. It has been typical that my informants have had several changes in their work status and, furthermore, I also have meaningful connections to a larger number of game companies through my fieldwork. This has made it possible for the developers to reflect varying studio cultures, roles and other factors within their work.

I have been lucky enough to have a relatively big group of game researchers helping me with my studies directly through collaboration and indirectly through discussions. While sometimes your colleagues give you the hardest time, they are irreplaceable for the peer support and help you to reflect your thoughts. Moreover, my colleagues have helped me to see games from so many different perspectives. When it comes to this particular study, I had not been able to do such a wide variety of explorations without my peers. Especially, monthly meetings with my colleagues at the University of Tampere (see Figure 5) have been the places where I have kept my understanding on games exceptionally up to date. As already discussed, the social context of my studies can be position to the multidiscipline of game studies, which is well visible in the direct collaborations related to this study. The background of my colleagues varies from humanities to natural sciences including such fields as sociology, computer science, economy, media studies, information studies, cultural studies etc. The individual colleagues participating in the research work to be included in this book are: PhD Student Kati Alha, University of Tampere; PhD Timo Nummenmaa, University of Tampere; PhD Jaakko Stenros, University of Tampere; MSocSc Janne Paavilainen, University of Tampere; MSocSc Juho Karvinen, University of Tampere; M. Sc. Jussi Kuittinen, University of Tampere; MSocSc Juha Köönikkä, University of

Tampere; PhD Student Heikki Tyni, University of Tampere; MSc Hannamari Saarenpää, University of Tampere; MSc Johannes Niemelä, University of Tampere; Professor Frans Mäyrä, University of Tampere; Tero Laukkanen, University of Tampere; Tuuli Saarinen, University of Tampere; PhD Alyea Sandovar, Fielding Graduate University, USA. Altogether, the whole game research group at the University of Tampere Game Research Lab has been providing academic reflection and comments for the drafts of the research papers and direct collaboration. This study, as a Doctoral study, has been supervised by Professor Frans Mäyrä at the University of Tampere, School of Information Sciences (later Faculty of Communications) starting in Spring 2010. Professor Mäyrä has also been the scientific leader of the research projects I have been participating in from 2006 to 2016.

In the following, I will explain the data sets, research settings and main findings of the relevant research I have conducted. I have used these studies for forming the five theses of game design praxiology for the past ten years (2006-2016). Most of the findings have been already published elsewhere, so I will provide the list of the related publications, where one can read about the research settings, findings and discussion in more detail. In Chapter 0.6, I reflect on the methodology of the overall study, whereas the detailed methods used in the included studies are more closely reflected in the listed publications. The contents and findings are reflected as a whole and utilised in various ways in the forthcoming chapters. Most of my sub-studies have not been set to build an overall understanding of game development practice. Given that I would have had a ten-year research funding for only doing that, I might have chosen to work on different sub-topics. Nevertheless, I have selected these pieces as building blocks for my *game design praxiology*.

LIST OF ACADEMIC PAPERS RELATED TO THIS STUDY IN THE ORDER OF THE PUBLICATION YEAR:

1. KUITTINEN. J.. KULTIMA. A.. NIEMELÄ. J. & PAAVILAINEN. J. 2007. CASUAL GAMES DISCUSSION.
2. KULTIMA. A.. NIEMELÄ. J.. PAAVILAINEN. J. & SAARENPÄÄ. H. 2008. DESIGNING "GAME IDEA GENERATION" GAMES.
3. KULTIMA. A.. NIEMELÄ. J.. PAAVILAINEN. J. & SAARENPÄÄ. H. 2008. USER EXPERIENCES OF GAME IDEA GENERATION GAMES.
4. KULTIMA. A. 2009. CASUAL GAME DESIGN VALUES.
5. KULTIMA. A. 2010. THE ORGANIC NATURE OF GAME IDEATION: GAME IDEAS ARISE FROM SOLITUDE AND MATURE BY BOUNCING.
6. KULTIMA. A. & ALHA. K. 2010. "HOPEFULLY EVERYTHING I'M DOING HAS TO DO WITH INNOVATION". GAMES INDUSTRY PROFESSIONALS ON INNOVATION IN 2009.
7. KULTIMA. A. & STENROS. J. 2010. DESIGNING GAMES FOR EVERYONE: THE EXPANDED GAME EXPERIENCE MODEL.
8. KULTIMA. A. & ALHA. K. 2011. GAME DESIGN CONSTRAINT.
9. KULTIMA. A. & ALHA. K. 2011. USING THE VNA IDEATION GAME AT GLOBAL GAME JAM.
10. KULTIMA. A.. KÖÖNIKKÄ. J. & KARVINEN J. 2012. THE FOUR DIFFERENT INNOVATION PHILOSOPHIES GUIDING THE GAME DEVELOPMENT PROCESSES.
11. KULTIMA. A. 2015. AN AUTOPSY OF THE GLOBAL GAME JAM 2012 THEME COMMITTEE DISCUSSION: DECIDING ON OUROBOROS.
12. KULTIMA. A. 2015. DEFINING GAME JAM.
13. KULTIMA. A. 2015. DEVELOPERS' PERSPECTIVES ON ITERATION IN GAME DEVELOPMENT.
14. KULTIMA. A. 2015. GAME DESIGN RESEARCH.
15. KULTIMA. A.. ALHA. K. & NUMMENMAA. T. 2016. DESIGN CONSTRAINTS IN GAME DESIGN. CASE: SURVIVAL MODE GAME JAM 2016.
16. KULTIMA. A. & KARVINEN. J. 2016. GENERATING. RECORDING. STORING. SHARING AND WORKING WITH GAME IDEAS – SNAPSHOT FROM THE 2010 MOBILE GAMES ERA.
17. KULTIMA. A. & SANDOVAR. A. 2016. GAME DESIGN VALUES.
18. KULTIMA. A. 2017. THE ROLE OF STIMULI IN GAME IDEA GENERATION.
19. KULTIMA. A. & ALHA. K. 2017. THE INTERTWINED ROLE OF PLAY AT GAME COMPANIES. AN EXAMINATION OF OFFICE PLAY STRATEGIES.

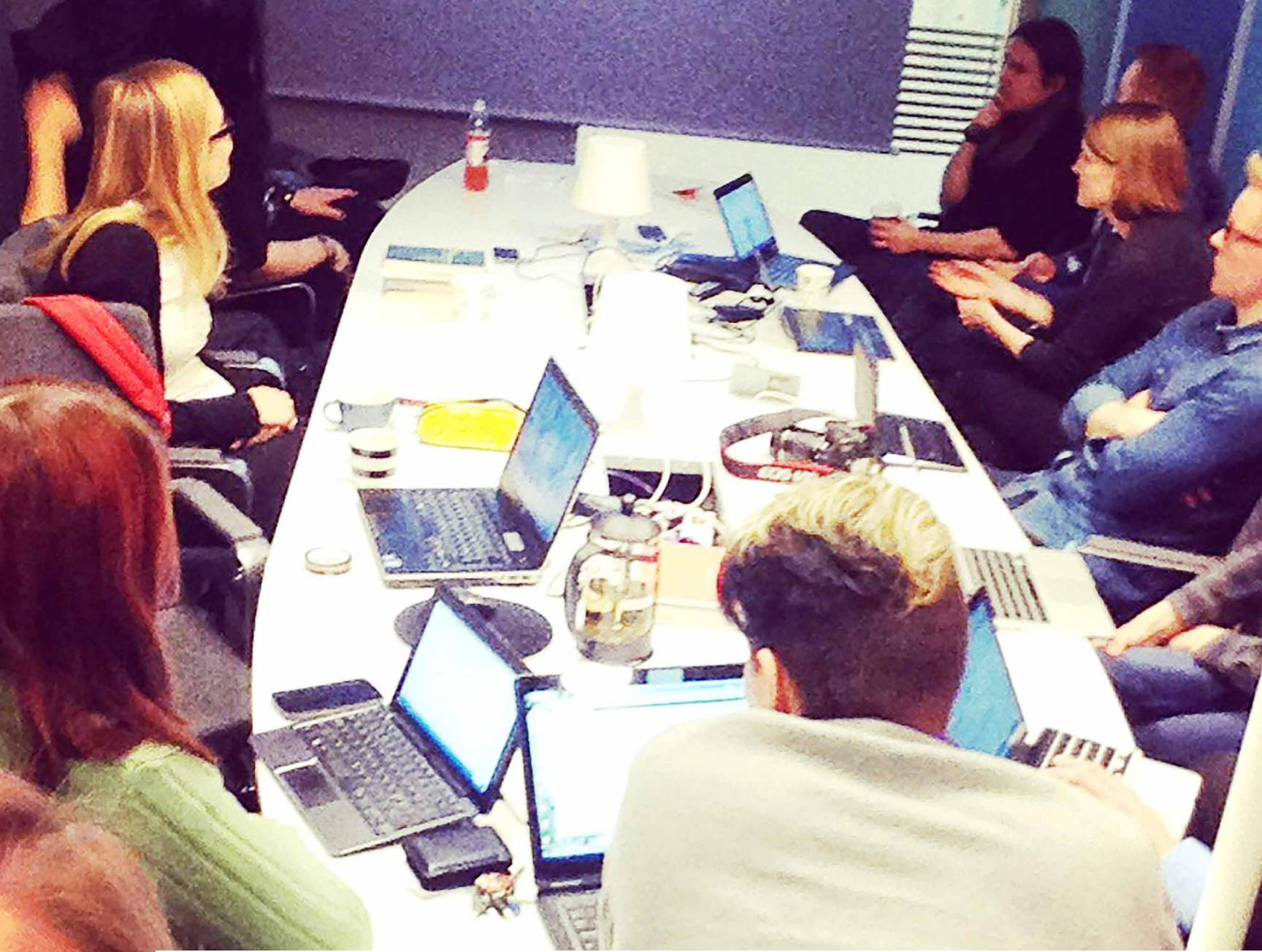


FIGURE 5. ONE OF THE MONTHLY MEETINGS WITH MY UNIVERSITY OF TAMPERE GAME RESEARCH LAB COLLEAGUES.

The studies reported in these articles are explained in the summary below and listed in Table 1 (further breakdown of the field trips, see Table 2). The number of the articles (1-19) is equal to the number of the studies (I-XIX), but some of the studies have been utilised in multiple articles and some are utilised only in this publication. My studies are also overlapping in terms of the data collection periods and intertwined with my numerous field trips (see Table 2). The number of the informants is not mutually exclusive: some informants are interviewed multiple times (twice or thrice) and in the survey study of idea practices (VIII), this information cannot be confirmed due to the anonymity of the responses. As the studies also vary with the methods used, the number of informants is not always comparable or possible to count in an exact way. It is also notable that one data set utilised precedes my study period collected in 2005 by my colleague Tero Laukkanen. Nevertheless, in all of the studies included in this book, I have been in a leading role.

In addition, there are a couple of studies and projects which never made it to the finishing state or were abandoned already early on, but might have influenced my theorising and contextualising of the research questions. I have also conducted studies and participated in research projects that do not directly contribute to my theses, even though they have impacted my thoughts about games and game design. The nature of the explorative research as Stebbins (2001) pointed out is about keeping your mind open and such an approach can lead to dead ends, which are nevertheless important for the overall arguments and meaning making. My 2015 paper "Game Design Research" is not included in the aforementioned list of studies, but it has been utilised in this chapter.

I: MEANING OF CASUAL

My first study to be included in this overlook of ten years was conducted in 2007 and it covered the concept of *casual games*. The study utilised several sources; forum discussions, game press articles, industry news and whitepapers, workshop discussions as well as game playing for analysing the definitional space on the phenomenon of casual games by game professionals and gamers alike. As a result of this examination, a multifaceted meaning of the concept of 'casual' in games was highlighted including identified layers of the discussion. The discussion on casual games denoted the multiple levels of game phenomena: player demographics, attitude and behaviour of the players, a genre or industry segment and the qualities and features of certain products. In this work, we separated the meanings of: *casual in games cultures, casual game, casual gaming, casual playing, casual gamer and casual game player*. Furthermore, the study exposed a change that was going to impact games cultures and creation widely and suggested that we should examine game experiences wider than a mere interaction between the player and the game while playing the game. I was responsible for the overview of the study and I also conducted the main analysis. The results of this examination were reported in the Future Play 2007 conference paper "Casual Games Discussion" (Kuittinen et al. 2007) and in the research report of the GameSpace project "GameSpace: Methods for Design and Evaluation for Casual Mobile Multiplayer Games" in 2009 (Paavilainen et al. 2009). This study is utilised in Chapter 1 where I examine the concept of change and the timely and particular nature of game design.

TABLE 1. STUDIES. NUMBER OF INFORMANTS AND PUBLICATIONS 2006–2016.

STUDY	NUMBER OF INFORMANTS	DATA COLLECTED/ PERIOD	PUBLICATION(S)
I: MEANING OF CASUAL	–	2007	(1) KUITTINEN ET AL. 2007
II: EXPANDED GAME EXPERIENCE	–	–	(7) KULTIMA & STENROS 2010
III: GAME DESIGN VALUES	–	2006–2016	(4) KULTIMA 2009 (17) KULTIMA & SANDOVAR 2016
IV: INNOVATION ATTITUDES	28	2009	(6) KULTIMA & ALHA 2010
V: INNOVATION PHILOSOPHIES	24	2010	(10) KULTIMA ET AL. 2012
VI: MEANING OF ITERATION	24 + 4	2010 & 2013–2014	(13) KULTIMA 2015C
VII: GAME IDEAS	23	2005 & 2007	(5) KULTIMA 2010
VIII: IDEA PRACTICES	79	2010	(16) KULTIMA & KARVINEN 2016
IX: GAME IDEA GENERATION GAMES	10–14 (EST.)	2006–2008	(2) KULTIMA ET AL. 2008A (3) KULTIMA ET AL. 2008B
X: ROLE OF STIMULI	40	2009–2012	(18) KULTIMA 2017
XI: CONSTRAINED IDEATION	12–20 (EST.)	2009–2011	(8) KULTIMA & ALHA 2011A
XII: CONSTRAINTS AND IDEATION METHODS	72	2010–2011	(9) KULTIMA & ALHA 2011B
XIII: CONSTRAINTS IN GAME DEVELOPMENT AND GAME JAMS	15	2016	(15) KULTIMA ET AL. 2016
XIV: DESIGN PARADIGMS AND GAME JAMS	11	2011–2012	(11) KULTIMA 2015A
XV: NOTION OF GAME JAM	–	2006–2014	(12) KULTIMA 2015B
XVI: PLAYFUL GAME STUDIOS	7	2010–2012	(19) KULTIMA & ALHA 2017
XVII: FIELD TRIPS AND DIGITAL ETHNOGRAPHY	150–300 (EST.)	2006–2016	THIS PUBLICATION
XVIII: DESIGN PROJECTS	–	2008–2016	THIS PUBLICATION
XIX: REFLECTING THE FIVE THESIS WITH GAME DEVELOPERS	7	2016	THIS PUBLICATION

II: EXPANDED GAME EXPERIENCE

In 2010, we built on top of the analysis of casual by exploring a heuristic model of *Expanded Game Experiences* (EGE). In this theoretical study, we discussed the changes that the transformations in digital play were potentially implying to the design of experiential entertainment products, games. We argued that the importance of the context of the gameplay experience was on the rise. We pictured the cycle of the game experience as a series of choices and thresholds of use and included the stage of *information retrieval, enabling, preparations, gameplay, afterplay and disposal* as part of the expanded game experience. I was mainly responsible for the model; it had been maturing since the GameSpace project. Jaakko Stenros helped me refine the thinking and added his own contribution. The model was reported in a research report "Games as Services Final Report" (Sotamaa & Karppi 2010) and in further detail in the Future Play 2010 conference article "Designing Games for Everyone: The Expanded Game Experience Model" (Kultima & Stenros 2010). The EGE model is tied to the discussion on the changes within game industry in Chapter 1.

III: GAME DESIGN VALUES

The study on the meaning of casual and the heuristic design model of EGE were supplemented with another theoretical exploration of casual from the perspective of design values in another theoretical construction. The study published in 2009 further developed the underpinnings of the casual turn bringing the phenomenon of digital games into a larger perspective – calling the transformation the *normalisation of digital play*. In this analytical piece, the phenomenon of casual games was tracked on to two overarching changes: 1) game player demographics becoming more heterogenic, and 2) emergence of a variety of secondary play motives. The study discussed the concept of casual games as a transformation in design values: *accessibility, acceptability, flexibility* **and** *simplicity* and presented a set of popular design solutions within casual games of that time to illustrate the issue. This work was initially reported in the Academic Mindtrek 2009 conference paper "Casual Game Design Values" (Kultima 2009). Later, this notion of casual game design values was elaborated into a more exhaustive design value examination in games in 2016 in a conference paper "Game Design Values" (Kultima & Sandovar 2016) with the help of Alyea Sandovar adding her thinking on the societal values in game design. The notion of design values will be discussed in more detail in Chapter 2.

IV: INNOVATION ATTITUDES

In 2009, together with my colleagues from the GaIn project, we conducted an interview study on the selected speakers of three industry conferences: Game Developers Conference 2009, Game Developers Conference Europe 2009 and Nordic Game 2009. The goal of the study was to map the innovation atmosphere and attitudes of game developers towards the concept of innovation. 28 industry actors were interviewed, and as a result of the study, seven attitude profiles were constructed to depict the different stances game developers could take towards innovation. The profiles, *artists, universalists, followers, evangelists, nihilists, instrumentalists* **and** *scarecrows* depicted a versatile set of views on innovation. The study revealed how innovation was often seen as a value in itself within game development even though cynicism and other views were also present. I was responsible of the study design and we conducted the interviews together with Kati Alha and Timo Nummenmaa, analysis with Kati Alha. The results of this study were reported in 2010 in a conference paper "'Hopefully Everything I'm Doing Has to Do with Innovation'. Games Industry Professionals on Innovation in 2009" (Kultima & Alha 2010) and is utilised in Chapter 4.

V: INNOVATION PHILOSOPHIES

In the following year, in 2010, we conducted an interview study on Finnish game developers. In this study, 24 game developers from 7 Finnish game companies were enquired about their conceptions of innovation from the perspective of the development process. We interviewed 3-6 staff members per company and the interviews were supplemented with a concurrent drawing exercise where the interviewees also illustrated their development processes. One slice of the analysis summarised four elements of the innovation processes: *idea centric, human centric, evaluation centric* **and** *iteration centric* innovation philosophies. The study was designed by me, most of the interviews were conducted by

Juha Kööniкkä and a larger group of researchers in the GaIn project participated in the analysis. The results of the analysis were detailed in the seminar paper: “The Four Different Innovation Philosophies Guiding the Game Development Processes” in 2012. (Kultima et al. 2012) and the full analysis of the data was captured in several writings of the research report of GaIn project (Kultima & Alha 2011a). This study has also been used in Chapter 4.

VI: MEANING OF ITERATION

The innovation process study from 2010 was elaborated with new interviews gathered 2013-2014 resulting in a closer look at game developers’ experiences with iteration. The study supplemented the 2010 study on development processes with additional deep interviews concentrating on the concept of iteration from the perspective of the designer. The study reveals how all-encompassing, yet intertwined and multifaceted role iteration has for game design practice. Whilst the essential role of iteration for game development is largely agreed upon, the details of how much, on what, who, when and how iteration should be practised does not enjoy consensus. The article proposes four frames for iteration: *iteration as elaboration, iteration as simplification, opportunistic iteration* **and** *omissive iteration*. I conducted this study alone. The results of this study are reported in the Academic Mindtrek 2015 conference article “Developers’ Perspectives on Iteration in Game Development” (Kultima 2015c). The findings of the study are used in building the argument of the Chapter 3.

VII: GAME IDEAS

My first interview study combined two sets of interviews from 2005 and 2007 on the *ideation practices* of game developers. The study totalled interviews of 23 game developers from 8 Finnish game companies. The study was set to explore how game developers create new ideas and what kind of approaches and methods they use. The study concluded that the practice and experiences on idea generation varied. Even though game development was considered largely a team effort, the game ideas were often initiated in solitude, blue-sky brainstorming being rare. Once the ideas were developed further, the process was reported to become more social. Furthermore, the study revealed how ideas are prone to change during the production and are best treated as starting points for the production instead of fundaments. I designed the interview questions, conducted the 2007 interviews and formed the results. The 2005 data was collected by Tero Laukkanen in a project that I was not part of and I ended up using only parts of it. The results of this study were reported in the Future Play 2010 conference article “The Organic Nature of Game Ideation: Game Ideas Arise from Solitude and Mature by Bouncing” (Kultima 2010). As in all other idea-related studies, this is also utilised in Chapter 4.

VIII: IDEA PRACTICES

Within the Games and Innovation project, we ran an online survey on the idea practices of game developers in 2010. The study was set to examine how game ideas were generated, recorded and used within the game productions. The respondents of the online survey (N=79) were asked altogether 60 questions on their innovation habits and the research was later reflected in 2016. The survey complemented earlier qualitative studies and highlighted a couple of interesting directions for future studies. One important note was the partial reuse of

ideas as a main type of use for recorded ideas. Furthermore, the survey emphasised variance in idea practices and the use of personal tools and past time for idea work. The results also highlighted the need for tangible idea communication: rapid prototyping, game jamming and mind mapping were used to promptly concretise the design ideas. I was responsible for the survey design, but the whole team of the GaIn project helped with it and the analysis was mainly conducted by Juho Karvinen – I added the larger interpretations of the data. The results of this study were reported in 2016 in the Academic Mindtrek 2016 conference paper "Generating, Recording, Storing, Sharing and Working with Game Ideas – Snapshot from the 2010 Mobile Games Era" (Kultima & Karvinen 2016). This is briefly visited in Chapter 4.

IX: GAME IDEA GENERATION GAMES

Within the GameSpace project (2006-2008), a handful of *game idea generation tools* were designed. We conducted an iterative design experiment of brainstorming games spanning over two years. As the games were designed as expert tools for game developers, the study consisted of practitioner workshops and a cultural probe study gathering user experiences of the tools in an authentic development setting. After the experiment, 2-4 Finnish developers from four companies were group-interviewed company by company. The study revealed positive experiences with game-based tools, highlighting the need for simple and efficient tools for on-demand ideation: the game development process is intensive and resources for learning new approaches or adopting new tools is scarce. We divided the workload of designing different ideation games among the researchers of GameSpace project, which was led by Janne Paavilainen. The workshop and the other ideation study setting were mostly my design, but we had very collaborative ways of working in the project. The results of these studies were reported in two academic papers: "Designing 'Game Idea Generation' Games" and "User Experiences of Game Idea Generation Games" (Kultima et al. 2008a, Kultima et al. 2008b). In Chapter 4, the experiences of these studies are utilised as a background material.

X: ROLE OF STIMULI

The mechanics of the game idea generation methods was further explored with a set experiment. On the ideation experiment conducted 2009-2012, 20 pairs were asked to brainstorm game ideas with the help of a collaborative brainstorming game *VNA*. The participants consisted of 22 professional game developers from Finland, Hong Kong, New Zealand, the US, Czech Republic, Singapore, Mexico and Italy. In addition to this, 18 informants were game researchers and non-game related professionals. The game consisted of cards with words printed on them and the players were instructed to use the words as stimuli for game ideas. In order to examine the role of stimuli for the game ideas, the experiment was set so that every pair had identical stimuli. The card deck was limited to 30 cards and organised in a way that every pair had the cards in the exact same order. The experiment suggests that even though atomistically the ideas have connections to the original stimuli, they come out as different unless the stimuli awake design precedents fixating the ideation. I conducted this study alone. The results of this study were reported in the conference paper "The Role of Stimuli in Game Idea Generation" in 2017 (Kultima 2017). This study is highlighted in Chapter 4.

XI: CONSTRAINED IDEATION

As part of the Games and Innovation research project (2009-2011), we organised ideation workshops at four Finnish game companies during the autumn 2009. After the workshops, thematic group interviews were conducted with the 2-6 participants of each workshop. The participants of the workshops were using game ideation games and tools we had designed for the workshop. The theme of the workshops was picked by the participants themselves to suit their current projects. The results of this study propose that almost any aspect of a game can be a design constraint and that it is very rare that studios can utilise blue-sky ideation. Furthermore, the constraints can be *inside, outside, inclusive* **or** *exclusive*. We designed the study and the interviews as well as analysis was conducted together with Kati Alha. The report of the experiment was included into the Games and Innovation research report and published in 2011 (Kultima & Alha 2011a). These findings are utilised in Chapter 4.

XII: CONSTRAINTS AND IDEATION METHODS

To further understand the mechanics of game idea generation games, we conducted an ideation experiment at Global Game Jam Tampere in 2010 and 2011. The experiment was set to compare idea generation approaches and to explore theme-constrained ideation in a closer look. The participants of the game jams (29 in 2010 and 43 in 2011) brainstormed for their jam projects using four methods: two methods were structured as games, whilst two methods afforded more freedom. One of the game-based methods was especially designed to fit the thematic design constraint of the event. The study revealed that the theme-constrained method was successful in directing the ideation towards the constraint, yet maintaining the number of interesting ideas high. The other game-based method steered the focus away from the theme further highlighting the impact of the method for ideation. I designed the study and our research group for the GaIn project participated to the analysis of the ideas. The results of this study were reported in a DiGRA 2011 conference article “Using the VNA Ideation Game at Global Game Jam” (Kultima & Alha 2011c). These findings are also utilised in Chapter 4.

XIII: CONSTRAINTS IN GAME DEVELOPMENT AND GAME JAMS

In 2016, the notion of the design constraint in game design was studied at another game jam setting. We conducted a small interview study on the perspectives of game developers towards the game design constraints in an atypical game development setting with limited electricity and connection. 15 out of the 25 participants of the Survival Mode 2016 game jam were interviewed mostly in pairs and asked to explore the constraints in their jam project reflecting them to those in their daily work. The study again highlighted the differences in the perspectives and experiences of the creative processes: The constraints were experienced in different ways from one project to another and from one individual to another. In a game jam setting, just like in commercial game development, some of the constraints are set by the event, some are set by the participants themselves prior to the event and some emerge during the event. I designed the study and we conducted the interviews as well as analysis together with Kati Alha and Timo Nummenmaa. The results of this study were reported in the conference paper “Design Constraints in Game Design.

Case: Survival Mode Game Jam 2016" (Kultima et al. 2016). This study is utilised within chapter 4 as well as some lessons from it are carried over to Chapter 5.

XIV: DESIGN PARADIGMS AND GAME JAMS

I conducted an online ethnography in 2011-2012 by participating in the Global Game Jam 2012 Theme Committee. The committee's work was to come up with a theme suitable for a 10,000 participant game creation event spanning over 47 countries. The online discussion of eleven game developers and educators on the theme revealed varying beliefs on the role of theme, the nature of the event and, furthermore, underlying game design paradigms while trying to create an optimal setting for a game creation event. The theme was treated as creative stimulus or a design constraint treating game design as problem solving or reflection-in-action. The study highlighted the need to look further into the differences in approaching game development as design. I conducted this study alone. The results of this study were reported in a workshop paper of the FDG 2015 conference "An Autopsy of the Global Game Jam 2012 Theme Committee Discussion: Deciding on Ouroboros" (Kultima 2015a). The results of this study are utilised and further elaborated in Chapter 5.

XV: NOTION OF GAME JAM

An examination of the field of game jams was conducted in 2015 in the form of a literature review, which reflects the research on game jams around the globe. The goal of the literature review was to discuss the emerging academic interest towards the phenomenon of game jam events and to provide a tentative conceptual framing of the phenomenon. In the review, 20 academic papers published 2006-2014 were analysed. The article proposed a definition that *a game jam is an accelerated opportunistic game creation event where a game is created in a relatively short time frame exploring the given design constraint(s) and the end results are shared publically*. The article further proposes that game jams are becoming central for the future history of game development. I conducted this study alone. The results were reported in the FDG 2015 conference paper "Defining Game Jam" in 2015 (Kultima 2015b). This examination has been used in Chapter 5.

XVI: PLAYFUL GAME STUDIOS

To expand my understanding of the context of game development, I also conducted an interview study on seven game studios in Finland, Germany, the UK and the US. In the study, seven game studios from Finland, the US, the UK and Germany were toured and the company representatives were explaining their office design and culture in 2010-2012. The study revealed the intertwined role of play for game work with varying personal strategies. The study revealed four distinct play strategies at the examined game companies: *basic play strategy, collaborative decorative play, brand play* **and** *gamification through player metrics*. I conducted the interviews myself and the analysis was carried out by me and Kati Alha. The results of this study were reported in the conference paper "The Intertwined Role of Play at Game Companies. An Examination of Office Play Strategies (Kultima & Alha 2016). This is used in Chapter 4.

XVII: FIELD TRIPS AND DIGITAL ETHNOGRAPHY

Altogether the studies explained hereinabove do not form an exhaustive whole. There is simply much more to explore on the nature of game development from the perspective of creativity, ideation and overall practice. This type of fragmented nature of the research is one of the challenges of project oriented, professional game research. Many of my studies were not initially intended to be part of a larger study, but instead had their own research questions and interests. These research interests were often tied to a shorter research project as explained hereinabove.

However, these studies form a research narrative sharing an intellectual goal. My interest towards the game development and games has pushed me to find insight not only towards the process and methods but also towards an era and community. Early on, I found it hard to formulate research questions that were meaningful for my informants, and that has led me to explore the context more, in various ways.

In 2008, I participated in my first Game Developers Conference in San Francisco. I was a speaker at the Mobile Games Summit and was talking about creativity techniques in game design. The response I received for my talk was very encouraging and in return I also learned a lot more than what I had learned so far from academic conferences and game design books. From that onwards, an important epistemological ground for my research has been this engagement with the industry actors and reflecting my thoughts with various professionals – sometimes as a speaker, sometimes with a specific data collection task and sometimes with parallel roles (see Figures 6 & 7, but also Figures 15, 16, 17 & 20).

That said, my ten-year study period includes various industry get-togethers, informal meetings, after parties, house warming parties (of game studios), game release parties, game industry conference and fair trips etc. My field trips cover 40 industry conferences and fairs in nine different countries (Finland, the US, the UK, Germany, Sweden, Singapore, China, Russia and Canada), over 20 game jams in seven different countries (Finland, the US, Germany, The Netherlands, Denmark, the UK and Japan), various other events, mostly in Finland, but also in the US, Canada, Singapore, China, Mexico, UK and Japan – as well as a two-week participatory observation period within one Finnish game company in 2010. I have collected quite many participation badges over the years as a participant and as a speaker (Figures 6 & 7), but more importantly I have been exposed to the international game making communities in several instances over the years. The conferences, jams and other occasions have been listed and timed to Table 2. I will be exploring the methodological form and role of these trips in Chapter 0.6.

During these ten years, I have met hundreds of game developers and listened to hundreds of practitioner presentations (see Figure 15). It is hard to give an exact number of my encounters, but as an indication: out of my over 700 Facebook friends (by summer 2016), an estimation of around 500 are or have been part of the game industry or part of a larger ecosystem of games as researchers, educators, policymakers and students. As I have only friended people that I have met in person or had meaningful interaction with online,

FIGURE 6. SOME OF MY BADGES FROM THE GAME INDUSTRY CONFERENCES, GAME JAMS AND OTHER EVENTS I HAVE PARTICIPATED IN DURING THIS STUDY.

FIGURE 7. TALKING AND PARTICIPATING AT DEVELOPER CONFERENCES IN FINLAND. SWEDEN. RUSSIA. GERMANY AND THE US.

this gives a good indication of my exposure to the network of game professionals. In comparison, the size of the Finnish game industry in 2016 was around 2,700 developers (Hiltunen et al. 2017); The biggest industry event in 2016, Game Developers Conference attracted over 27,000 attendees (Game Developers Conference 2016) and the largest game jam in the world was participated in by over 36,000 people around the globe.

In estimation, I have had meaningful discussions (online and offline) on the practice of game development with about 150-300 informants with some encounters being much more brief and others spanning over the whole ten-year period. Game industry networking events have always been very casual, making it possible to connect with a large number of people. My initial social interactions with game developers have mostly occurred at conferences and industry get-togethers and there has been also an exchange of business cards as part of the liturgies. As a trace of these encounters, I have piles of calling cards from various actors in the field (Figure 8), some of them including my short notes. The exposure to these informants and their communities has continued over social media (mostly in Facebook, but also in Twitter or LinkedIn) gapping the field trips with a digital daily presence.

One could claim that my ten-year research period has been *ethnographically informed*. As I have not been trained as an ethnographer and I did not intend on my engagement with the industry representatives becoming officially part of my study, I have not collected notes in an intentional manner. However, within this ten-year period, the development of pocket cameras and mobile phones has made it convenient (and fun) to take photos throughout my journey (see Figure 9 for my recording devices). I have recorded over 20,000 photos from my conference, seminar and trade fair trips as well as from the other smaller get-togethers and game jams. These have been great sources of reflection and help in revisiting the details and dates. I have tried to utilise these photos also in this book capturing the richness of my journey and the moments of the encounters. Even though the lack of written notes makes it sometimes harder to recollect the details, I cannot avoid how seminal this photo-taking practice has been for my study. Overall, field trips and the social media interactions have proved to be a big part of my research.

However, I am tempted to playfully state that my study forms more of an *accidental ethnography*. I never intended to conduct an ethnography and did not intentionally choose this as my "way of seeing" (as Wolcott (1999) puts it) or my methodological framework. Instead, this enquiry was motivated by the natural need to understand the context of the game development to which I entered with my narrow theoretical frames. That said, I do not want to be caught in the middle of the methodological wars on qualitative methods as well as the specific wars on ethnography, which can be critiqued in so many various ways. Instead, it is important to understand that the conceptualisations that I have created in this work are grounded in a wide variety of observations, participation, data collection and meaning making. I will further explore the methodological grounds of my study in Chapter 0.6.

TABLE 2. FIELDWORK INCLUDING GAME INDUSTRY CONFERENCES. GAME JAMS. INDUSTRY PARTIES AND INFORMAL MEETINGS 2006–2016.

INDUSTRY CONFERENCES AND TRADE/CONSUMER FAIRS	GAME JAMS	OTHER OCCASIONS
2007		
NORDIC GAME CONFERENCE. MALMÖ. SWEDEN NORTHERN GAME CONFERENCE. OULU. FINLAND		WORKSHOPS WITH GAME DEVELOPERS. HELSINKI. FINLAND MEETINGS AND GUEST LECTURES AT MICROSOFT. AND MEETINGS WITH LOCAL GAME COMPANIES. SEATTLE. USA GUEST LECTURE AND WORKSHOP AT NOKIA GAMES. VANCOUVER. CANADA
2008		
GDC. SAN FRANCISCO. USA NORDIC GAME CONFERENCE. MALMÖ. SWEDEN		WORKSHOPS WITH GAME DEVELOPERS. HELSINKI. FINLAND
2009		
GDC. SAN FRANCISCO. USA NORDIC GAME CONFERENCE. MALMÖ. SWEDEN GDCE/GAMESCOM. COLOGNE. GERMANY		VARIOUS IGDA/GAME DEV MEETINGS AND PARTIES IN HELSINKI. FINLAND FIGMA GALA. HELSINKI. FINLAND
2010		
GDC CANADA. VANCOUVER. CANADA SINGAPORE TOY. GAMES & COMIC CONVENTION. SINGAPORE ASIAN GAME SHOW. HONG KONG	FINNISH GAME JAM (GLOBAL GAME JAM). TAMPERE. FINLAND (ORGANISER)	VARIOUS IGDA/GAME DEV MEETINGS AND PARTIES IN HELSINKI AND TAMPERE. FINLAND OBSERVATION PERIOD AT A LARGER GAME STUDIO. HELSINKI. FINLAND FIGMA GALA. HELSINKI. FINLAND STUDIO VISITS IN HELSINKI AND TAMPERE. FINLAND VISIT TO SINGAPORE. MEETING LOCAL GAME DEVELOPERS VISIT TO HONG KONG. MEETING LOCAL GAME DEVELOPERS
2011		
GDC. SAN FRANCISCO. USA NORDIC GAME CONFERENCE. MALMÖ. SWEDEN GDCE/GAMESCOM/NOTGAMES FESTIVAL. COLOGNE. GERMANY MANSEDANSEPLAY. TAMPERE. FINLAND PRACTICE. NEW YORK. USA CREATIVE GATHERING. OULU. FINLAND	FINNISH GAME JAM (GLOBAL GAME JAM). TAMPERE. FINLAND (ORGANISER)	VARIOUS IGDA/GAME DEV MEETINGS AND PARTIES IN HELSINKI AND TAMPERE. FINLAND FIGMA GALA. HELSINKI. FINLAND VISIT TO MEXICO. MEXICALI. WORKSHOP AT DIGITAL CHOCOLATE
2012		
GDC. SAN FRANCISCO. USA NORDIC GAME CONFERENCE. MALMÖ. SWEDEN GDCE/GAMESCOM. COLOGNE. GERMANY PLAYFUL. LONDON. UK	FINNISH GAME JAM (GLOBAL GAME JAM). TAMPERE. FINLAND (ORGANISER) SCORE GAME JAM. TAMPERE. FINLAND (JAMMER)	VARIOUS IGDA/GAME DEV MEETINGS AND PARTIES IN HELSINKI AND TAMPERE. FINLAND FIGMA GALA. HELSINKI. FINLAND STUDIO VISITS IN LONDON. UK. BERLIN. GERMANY AND SAN FRANCISCO. USA

INDUSTRY CONFERENCES AND TRADE/CONSUMER FAIRS	GAME JAMS	OTHER OCCASIONS
2013		
SPIELWARENMESSE. NURNBERG. GERMANY GDC. SAN FRANCISCO. USA NORDIC GAME CONFERENCE. MALMÖ. SWEDEN FLASH GAMM. MOSCOW. RUSSIA GDCE/GAMESCOM. COLOGNE. GERMANY PLAYFUL. LONDON. UK	FINNISH GAME JAM (GLOBAL GAME JAM). TAMPERE. FINLAND (ORGANISER) 0H GAME JAM. LONDON. UK (JAMMER) ASM FGJ. HELSINKI. FINLAND (JAMMER/ORGANISER)	VARIOUS IGDA/GAME DEV MEETINGS AND PARTIES IN HELSINKI AND TAMPERE. FINLAND FIGMA GALA. HELSINKI. FINLAND
2014		
GDC. SAN FRANCISCO. USA GAMES FIRST. HELSINKI. FINLAND GDCE/GAMESCOM. COLOGNE. GERMANY PLAYFUL. LONDON. UK	FINNISH GAME JAM (GLOBAL GAME JAM). FGJ BUS. SEVERAL CITIES. FINLAND (ORGANISER) TRAIN JAM. CHICAGO–SAN FRANCISCO. USA (JAMMER) SHAYLA GAME JAM. COPENHAGEN. DENMARK (VISITOR) ASM FGJ. HELSINKI. FINLAND (JAMMER/ORGANISER) SPATJAM. UTRECHT. NETHERLANDS (ORGANISER) QUANTUM GAME JAM. TUORLA. FINLAND (ORGANISER)	VARIOUS IGDA/GAME DEV MEETINGS AND PARTIES IN HELSINKI AND TAMPERE. FINLAND FINNISH GAME AWARDS. HELSINKI. FINLAND
2015		
NORDIC GAME CONFERENCE. MALMÖ. SWEDEN E3. LOS ANGELES. USA POCKET GAMER CONNECTS. HELSINKI. FINLAND	FINNISH GAME JAM (GLOBAL GAME JAM). TAMPERE. FINLAND (ORGANISER) QUANTUM GAME JAM. VANTAA. FINLAND (ORGANISER)	VARIOUS IGDA/GAME DEV MEETINGS AND PARTIES IN HELSINKI AND TAMPERE. FINLAND FINNISH GAME AWARDS. HELSINKI. FINLAND VISIT TO HONG KONG. MEETING CHINESE INDIE DEVELOPERS AND HONG KONG BASED GAME STUDENTS
2016		
GDC. SAN FRANCISCO. USA WHITE NIGHTS CONFERENCE. ST. PETERSBURG. RUSSIA GAMES FIRST. HELSINKI. FINLAND WHITE NIGHTS CONFERENCE. HELSINKI. FINLAND GDCE/RESPAWN/GAMESCOM. COLOGNE. GERMANY POCKET GAMER CONNECTS. HELSINKI. FINLAND SLUSH. HELSINKI. FINLAND	FINNISH GAME JAM (GLOBAL GAME JAM). SURVIVAL MODE. SODANKYLÄ. FINLAND (ORGANISER) TRAIN JAM. CHICAGO–SAN FRANCISCO. USA (JAMMER) GAME DESIGN DOJO. FUKUOKA. JAPAN (VISITOR) ASM GAME JAM. HELSINKI. FINLAND (ORGANISER) INNOGAMES JAM. COLOGNE. GERMANY (JUDGE) POCKET JAM #1. HELSINKI. FINLAND (ORGANISER) QUANTUM GAME JAM. HELSINKI. FINLAND (ORGANISER)	VARIOUS IGDA/GAME DEV MEETINGS AND PARTIES IN HELSINKI AND TAMPERE. FINLAND FINNISH GAME AWARDS. HELSINKI. FINLAND VISIT TO FUKUOKA. JAPAN. MEETING LOCAL GAME JAM ORGANISERS. INDIE DEVELOPERS AND GAME STUDENTS

XVIII: DESIGN PROJECTS

In addition to my theoretical studies, surveys, experiments and fieldwork, I have also gained insight into game design practice through the design projects (Figure 10) I have been able to find time to conduct during my ten-year period of studies – as a hobby or as part of the research projects. These should also be noted here, as they participate in grounding the five theses as well as illustrate my limitations in understanding the intricacies of the wide variety of commercial game development processes. The games I have created are: *Saunaan!*, *Murmentia*, *IDECARDS*, *Monsterbation*, *Run 4<3*, *Bebbu*, *Watch Parsnip Grow in Real Time* and *Technotriangles*. *Saunaan!* is an online scratch ticket that I worked on as a freelance designer in 2010; *Monsterbation*, *Run 4<3*, *Watch Parsnip Grow in Real Time* and *Technotriangles* are all small digital jam games. *Murmentia* and *Bebbu* are *phygital* games done on game jams, related to Hybridex research project. *IDECARDS* is a card game deck for game ideation created part of GaIn research project and as a variant for the design games we created in GameSpace project. I have also created such playful concepts as *MurMur Moderators* (interactive chairs), *OASIS* and *Floweri* (playful spaces) together with other researchers. These are works are public, as many other projects that never got published or finished have also informed my journey.

I cannot say that my portfolio is representative of an average game developer I have discussed with. It lacks representation of longer term commitment to commercial game development processes. However, these projects have been pivotal in reflecting the role of an idea, the notion of iteration, design constraint, design values and the creative context of game developers in collaborative projects. For instance, it has been very important to experience how an exciting idea can turn into the most boring game or how something that you never thought of can come up through tinkering or interaction with the prototype or with users. Also how motivation of the whole group, especially the programmers, can make or break the project. Conducting small scale development projects are seminal for forming empathy towards professional game makers and setting the context for your research questions. These experiences, among other issues, have also guided and refined my research focus.

XIX: REFLECTING THE FIVE THESES WITH GAME DEVELOPERS

Finally, to complete my explorative study, I organised discussions with a handful of game developers to reflect the five theses in 2016. The purpose of the discussions was to go through with trusted informants as to whether I had been successful in capturing the seminal issues in game design practice and if they had something to add or comment on. The discussions were 1-4 hour sessions set in informal settings and the informants were purposefully sampled to include industry actors that I could trust being honest and straightforward. I also tried to make sure that I had picked informants with different kinds of experiences on the industry: two of them also had experience in academic work, one had worked both in Finland and the UK, one was a German indie developer based in the UK, one was a CEO of a Danish company and two of them were women. The discussions had an impact on the final structuring of the chapters and interpretation of the middle-ground of my studies.

FIGURE 8. A PILE OF GAME DEVELOPER BUSINESS CARDS THAT I HAVE ACQUIRED DURING THE STUDY. FACEBOOK HAS TAKEN OVER SOME OF THE FUNCTIONALITIES OF NETWORKING. BUT AT LEAST UP UNTIL 2016. GAME DEVELOPERS STILL CARRIED AND VALUED BUSINESS CARDS.

FIGURE 9. SOME. BUT NOT ALL. OF MY CAMERAS FOR RECORDING THE MOMENTS DURING MY FIELDWORK. SMART DEVICES HAVE DEVELOPED A LOT DURING MY STUDIES.

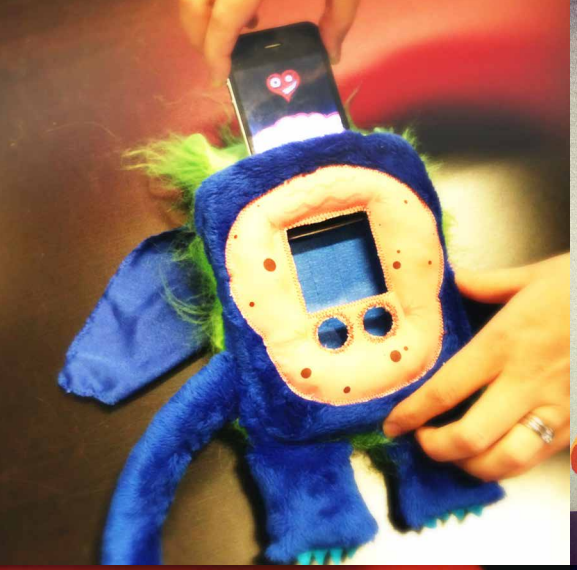
0.6 ON EXPLORATORY RESEARCH. ETHNOGRAPHY AND GROUNDED THEORY

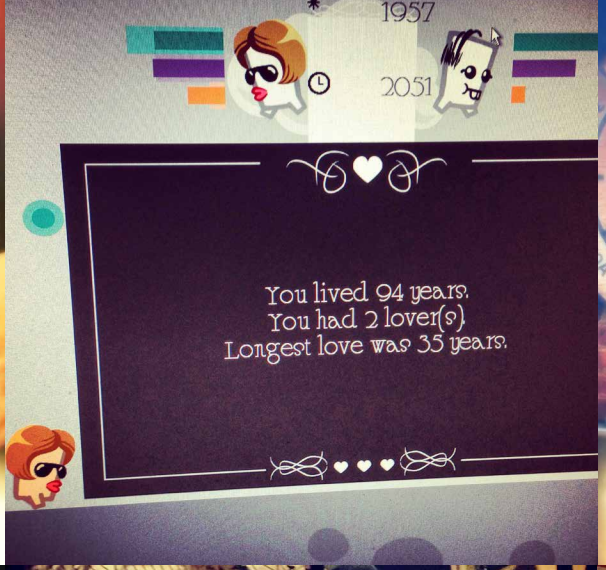
My education in philosophy has given me the courage to pursue multidisciplinary and open-minded scientific exploration independent of disciplinary boundaries. I have always been interested in how knowledge is constructed and what kind of ways there are to know. I consider myself a curious person and my research in this field has also been fuelled by my desire to chart unexplored topics.

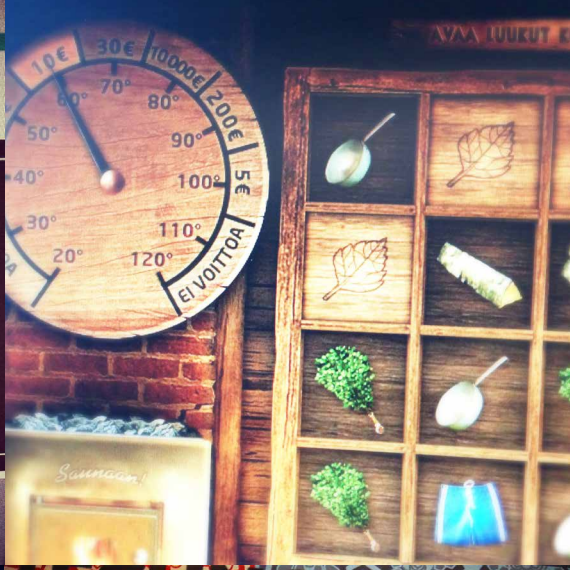
My ten-year study can be described as *exploratory research* (Stebbins 2001), and the theory formation and data collection have been conducted in the spirit of *Grounded Theory* (Charmaz 2006). Exploratory research is important in the field of game studies, where a lot of the phenomena are newly formed and underresearched. Studies can draw from various academic traditions, but sometimes the theoretical frameworks do not fit well enough and can also bias theory formation to some extent – at least in terms of exclusion. Salisbury and Cole (2016) argued that Grounded Theory Methodology (GTM) as part of the toolset for exploratory studies can serve game studies well, even though the 50-year heritage of it is often not very well known to the game researchers. Salisbury and Cole highlight how the tradition of GTM can be divided into three variants based on their proponents Glaser (G-GTM), Strauss (S-GTM) and Charmaz (C-GTM) and these do have differences in their epistemological assumptions. According to Salisbury and Cole, G-GTM emphasises one key concept for theory formation and favour a later literature review over basing the studies on extensive reading prior to the data collection. S-GTM can be considered more rigid, for instance, in the ways it instructs the coding of collected data and coming to a conclusion of model rather than one concept. Charmaz's C-GTM, which spirit I have adopted and applied, is based on a constructivist assumption on knowledge formation and emphasises the formation of conceptual categories as well as iteration in the process (Salisbury & Cole 2016; Charmaz 2006).

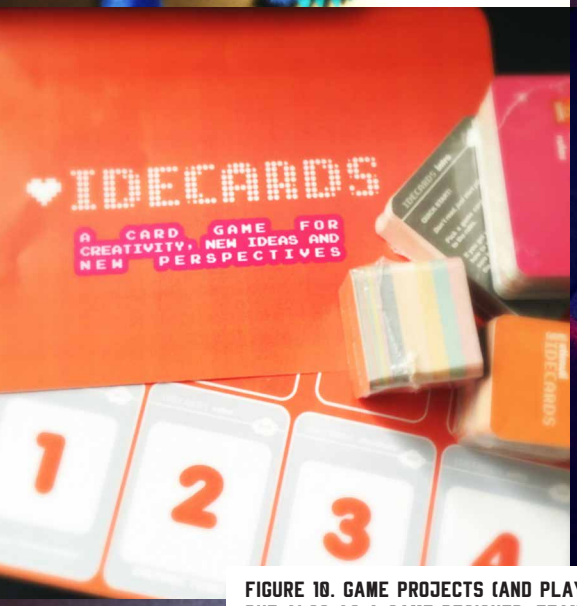
As already explained, forming the overview of my ten-year research was not in my plans when I initially started the data collection of the smaller studies. The research path itself has led me to apply various approaches in data collection, analysis and theoretical frameworks. My study consists of several sub-studies which all have their respective methodological approaches (see the publications listed in chapter 0.5 for more details) depending on the topic and project they have been positioned in – many of which have utilised semi-structured interview settings with audio recordings (see Figure 11 for my audio recorder). The overall theory in this book joins together several observations from within the sub-studies informed by my field trips and digital ethnography. It has been important for me to put together the thoughts and findings of my past studies as well as revisit them in reflective manner utilising my extended observations.

Even though many of my sub-studies have attempted to confirm my hypothesis of the creative work of the game developers or worked with theoretical assumptions, my studies have mostly been indicative, small and exploratory. The theoretical frames I have been









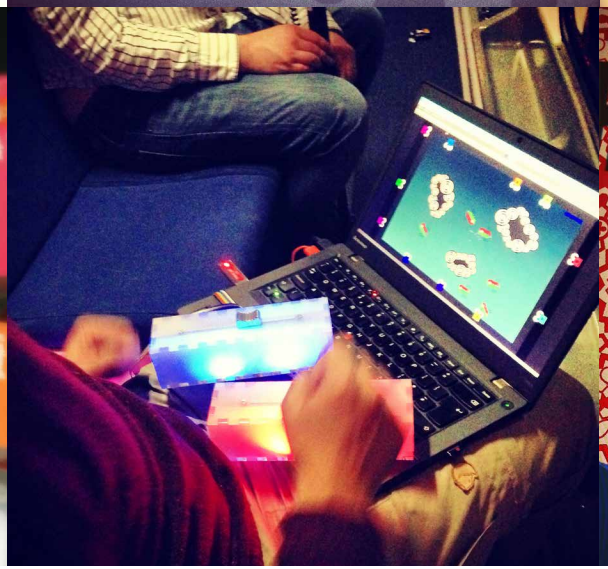
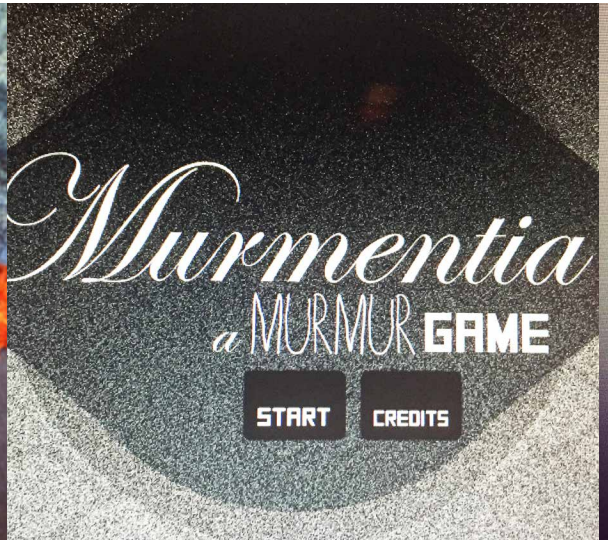
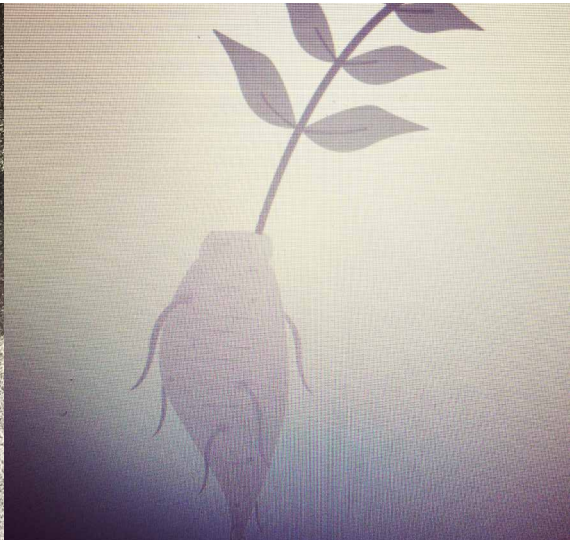


FIGURE 10. GAME PROJECTS (AND PLAYFUL PROJECTS) I HAVE BEEN PART OF MOSTLY AS A GRAPHIC DESIGNER. BUT ALSO AS A GAME DESIGNER. TEAM LEADER OR EVEN AS A SEAMSTER.





able to internalise and the views of practitioners have not always met, and I have had to be creative myself in order to synthesise the views into a whole. Digital game development is a new field which has no agreed-upon foundation and sits in the middle of traditions as well as builds its own (cf. Mäyrä 2008, Björk 2008, Aarseth 2001). Exploratory research is fitting for topics of emerging trends and such areas that do not enjoy a wide academic body of knowledge (Stebbins 2001), such as game design practice.

The opposite of exploratory research is *confirmatory research*, which is the colloquial image we have for scientific studies. Even though exploration is widely present in the academic knowledge constructions, there is relatively little discussion on its methodological role (Stebbins 2001). For Stebbins (2001), exploration has an open character and philosophically there is an emphasis on flexibility and pragmatism. The particular, biographically specific interest of an investigator is more common as well as fitting for many social science studies than treating these approaches as narrowing, quasi rule-bound and discipline-based processes which "settles and confirms rather than unsettles and questions what we know" (Stebbins 2001). Sometimes it is necessary to start by looking at a phenomenon in broad, nonspecialised terms. In other words, first observe the woods, and then study the individual trees (Stebbins 2001). In my studies, micro (for instance, the relevance of a stimulus for a game idea) and macro levels (such as attitudes towards innovation) of investigation have been intertwined forming an intellectual whole that both details and overarch. All of this has been interpreted by grounding the theory building on field observations and exposure to the developer communities through time.

Stebbins emphasises the iterative or *concatenated* nature of exploratory studies. He explains how it is typical that many initial explorations are assessed in the new field as though it were a confirmatory undertaking. Evaluating exploratory study as confirmatory is rooted in a failure to see exploration as a process that unfolds not only within individual studies but also across several studies. Stebbins (2001) also notes that the changing nature of modern social life holds a need for a programme that is continuous, especially in social sciences. Even in well-explored fields it might be important to ensure that new developments will find their way into established theory and that we are able to avoid the narrowness that comes of syllogistic reasoning. Good explorative research is conducted in several sub-studies and is *concatenated* over time (Stebbins 2001). These distinctions highlighted by Stebbins are important in communicating the value of my studies as a combined exploratory investigation into the experiences and contexts of game developers.

Initially, I started my journey in order to understand how games are made so that I could understand why educational games were not that successful in their design. I believed that educational scientists, often designing those games at that time, were missing an understanding of the practice of game creation. Consulting the game design literature was not sufficient in bridging the realm of education and playful constructs of games (Kultima 2006). A similar gap also presented itself in my studies with creativity techniques: although interesting from the perspective of creativity studies, my findings were missing a larger view of the context of their use. That time, there were rather few academic writings on

FIGURE 11. MY AUDIO RECORDER THAT I HAVE CARRIED AROUND. I DID NOT TRUST MY PHONE(S) EVER HAVING ENOUGH BATTERY POWER FOR REPLACING THIS DEVICE.

the topic, so I ended up socialising with the game developers. I found it more productive to "read" the practitioners as already mentioned. In this way, a large portion of my study has been *ethnographically informed* through social engagement with game developers: my study period of 2006-2016 in itself has been an ethnographic journey with field trips, digital ethnography (cf. Pink et al. 2016) and sub-studies.

As I am not a trained ethnographer, I was hesitant to address my research as ethnography, but I am starting to accept ethnography as one of the frames within my studies which should be evaluated. I used to think that ethnography was referring to studies of geographically secluded communities, not necessarily modern sub-cultures – let alone the fact that digital communications could be part of it as *digital ethnography* (Pink et al. 2016). However, the field of ethnography is wide (cf. Wolcott 1999) and it also has a place for my kind of studies, even though I have conducted it in a different way and focus than my peer, for instance, O'Donnell (2014).

Naturally, the period of ten years has been a lot about learning to become a better researcher. It has also been a path of creative approaches in interpreting and utilising various methods: my ethnography includes sub-studies that have been methodologically different from each other. Wolcott (1999) claims that you cannot learn enough about ethnography as a method simply by reading. Ethnography as well as many other qualitative research methods is also subjected to personal takes. Wolcott explains how anyone engaged in qualitative research develops an idiosyncratic style – this is not different to ethnography. To Wolcott (1999) Ethnography is more than a method: it is a way of conceptualising as well as a way of looking. Even though ethnography does not need to "drag on and on", it is also not something to be done in a hurry. My research has been gradually building towards its current form exploring different paths and frames. It can be easier to find the scientific frames that best describe this journey in retrospective, but I have not always had a clear view of my goals. Wolcott further explains how we are accustomed to hearing about research framed in certain ways: with a certain purpose, having fixed goals, using particular theories, addressing a certain research question. Ethnographic research is often spoken of that way, but it is not necessarily practised that way (Wolcott 1999). This type of uncertainty and vagueness in the researcher's work is sometimes hard to accept or admit.

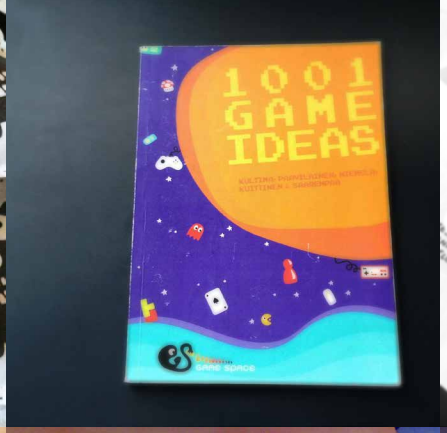
To Wolcott (1999), the importance of the ethnographically informed studies is the need to understand the context of the everyday life of a certain phenomenon. For him, there is no substitute for "being there" and "doing it". Then again, simply being there is not enough to guarantee results; if it were, we would be doing ethnography all the time, Wolcott notes. I believe that even though I hesitate to call my study ethnography, I have acted in an ethnographer's way and this needs to be explicated. In between my sub-studies I have used all the opportunities to learn more about the context and realities of creative work, even though often to reflect on my research questions of that time. I have utilised all the opportunities offline and online to discuss more with game developers about the topics of my research and game development at large. The topics that I was exploring were intertwined greatly with the many levels of the practice – even though something was in a

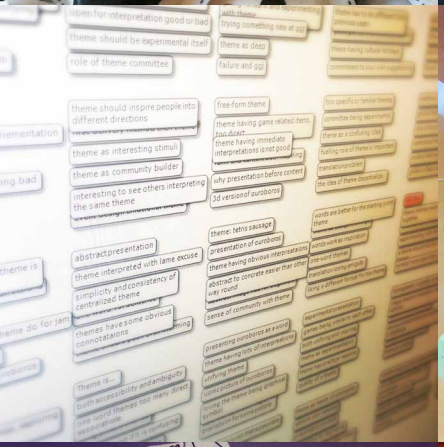
particular way in theory, it often gained complexity through the field observations. I wanted to make sure that I was able to see the overview of the creative lives of game developers to bridge my observations together. I still feel that I know very little. Then again no ethnographer wants or can ever be expected to take responsibility for providing the full and complete account of some group of people. Such a goal is unattainable (Wolcott 1999).

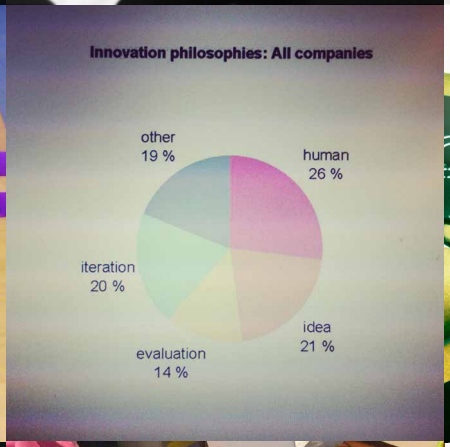
Furthermore, I am aware that the field of ethnography is large, debated and has undergone several transformations and epistemological developments, which is also what Wolcott (1999) confirms. To him, "ethnography generates fascinating philosophical, ethical, and methodological dilemmas. It always has, and always will, provoke discussion and debate." My study can be framed with other methodological frames of qualitative studies, but engaging with the practitioners has been an important part of achieving larger view and positioning the findings of sub-studies into a whole. The conference trips, parties and other social events as well as game jams (see Table 2) have become my fieldtrips and the photos my notes capturing emotional situations and recording the change in the industry as well as other timely issues (more on the changes on chapter 1). My study could be entirely framed as a *longitudinal ethnography* instead of *concatenated exploratory study* depending on which part is considered as more defining: the sub-studies or my fieldwork. Furthermore, the rise of the use of social media in game development work, such as Facebook, has also made my work a *digital ethnography* (Pink et al. 2016) – perhaps such a distinction is becoming less and less important as our lives are more and more digital.

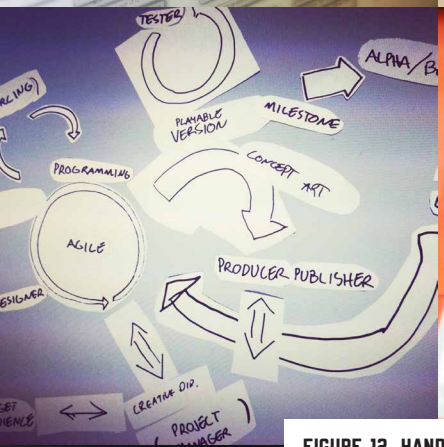
Another way of epistemically examining my research is to look at the mechanics between the data I have collected and the theoretical constructions I have ended up coining. Although, again, not trained in the tradition of *The Grounded Theory*, my research has followed its overall premise. Grounded theorists start with data: They start studying empirical events and experiences and pursue hunches and potential analytic ideas on them to form a theory. To the ear of someone conducting quantitative or confirmatory research, this might sound sloppy, but new theories and hypotheses do not come from thin air. The Grounded Theory explicates and systematises the intuitive rules on theory formation and provide transparency in exploratory research (Charmaz 2006).

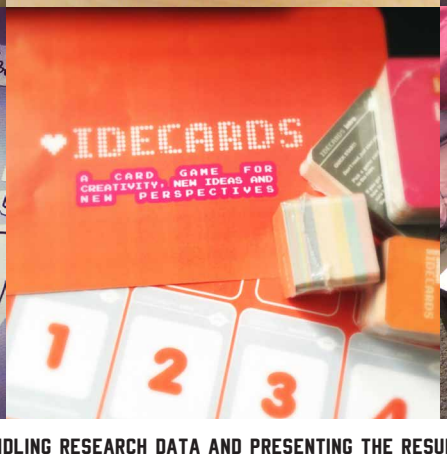
Grounded theory method emerged from sociologists Barney G. Glaser and Anselm L. Strauss's (1965; 1967) collaboration in opposing the positivist movement in social sciences mid-century (Charmaz 2006). When I started working as a researcher, the concept of positivism was familiar from my philosophy studies, but usually contrasted with the larger lens of constructivism – I was not aware of the methods of Grounded Theory. However, it was already used by my colleagues at the University of Lapland and it has later proved to be an interesting framework for making theory building and the interpretation of data a more structured process. Charmaz (2006) discusses the contemporary understanding of Grounded Theory as a data collection and analysis as well as theory formation method. Charmaz (2006) summarises grounded theory methods as "grounded theory methods consist of systematic, yet flexible guidelines for collecting and analyzing qualitative data to construct theories 'grounded' in the data themselves." These guidelines are more of a set











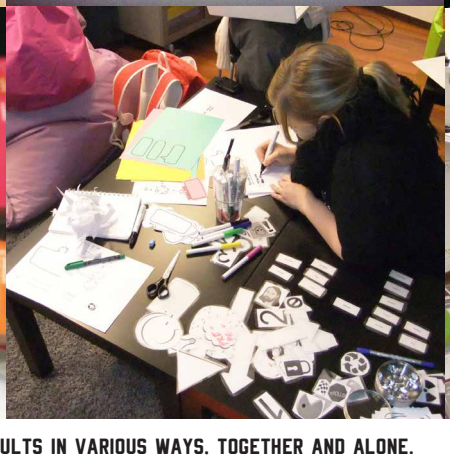


FIGURE 12. HANDLING RESEARCH DATA AND PRESENTING THE RESULTS IN VARIOUS WAYS. TOGETHER AND ALONE.

of general principles and heuristic devices than formulaic rules. Furthermore, Grounded Theory emphasises an iterative process: “as you work with your data and codes, you become progressively more analytic in how you treat them and thus you raise certain codes to conceptual categories” (Charmaz 2006). Charmaz’s Grounded Theory Methodology has been separated from Glaser’s and Strauss’s original thoughts (also separated from each other) and named as C-GTM (Salisbury & Cole 2016). I am more skewed towards her ideas of GTM than the original thoughts of Glaser and Strauss, them being either too “radical” (G-GTM) or too rigid (S-GTM) (cf. Salisbury & Cole 2016).

Charmaz (2006) discusses Grounded Theory also in ethnography. She points out that an ethnographer should study on a given field “Whatever is happening there.” By remaining open to the setting, actions and people in it; ethnographers have the opportunity to work from the ground up and to focus on whatever they find to be of importance. To Charmaz, the research problems ethnographers address, the participants they meet and the constraints they encounter all shape the iterative process of the researcher. Furthermore, the field notes or the observations in a grounded theory project might contain different kinds of recorded actions. Some are fuller, detailed notes marking anecdotes and observations, some emphasise significant processes and events, some might address what participants themselves define as important and some can be about the use of the language. These all contribute to the formation of the key theoretical notes (Charmaz 2006). Much of my research has followed these points of departure quite intuitively.

Even though most of my sub-studies have been conducted independently from each other, they have informed and guided one another. Some studies have also overlapped in practice (see Tables 1 & 2). The lack of resources I have encountered has forced me to sometimes postpone the data analysis or have a break in the data collection. This has given me time to also reflect on them while they have been ongoing. Furthermore, much of my research is based on a thematic interview approach, to which I have also coupled drawing or other concretising exercises helping the interviewees to communicate their thoughts of their own practice for me. I have utilised different concretising tools in interview data collection and conducted playful interventions as a type of action research (see Figure 12) as well as engaged design projects (see Figure 10) gaining agency at the game industry and understanding of the issues that are hard to explicate. A lot of the sensemaking and theory forming, however, has happened through a complex of this rich data that my sub-studies and overall participation has offered to me. I have also found it important to collaboratively and creatively work on my data (again, Figure 12), whether within the data gathering phase, data analysis phase or all the way to the dissemination of the results. This journey has been very fulfilling in so many ways.

THIS CHAPTER IS PARTIALLY BASED ON THE FOLLOWING ARTICLE:
KULTIMA, A. 2015. GAME DESIGN RESEARCH.

CHAPTER 1: GAME DESIGN IS TIMELY AND PARTICULAR

For the duration of my 10-year research period, the game industry has been impacted with several changes in different domains. Many of these changes have affected – directly or indirectly – the ways games are made. Most importantly, the atmosphere of change has an impact on the attitudes of the developers and *game development as experienced*. The collective of game developers working on game design is always under time pressure. The daily design decisions are made based on the best available information and with the help of existing resources. All of this affects the practice.

It is difficult for us researchers to understand the daily practice of making games in its entirety, just as the daily reality of academia can be equally unreachable for game developers. In my discussions with practitioners, sometimes unrealistic hopes for the power of science in helping design have surfaced. In order to make their developer life easier, many might have wishes for more general knowledge of understanding the experience of their players. The biggest challenge in creating games is that the creator experiences their artefact in a different way than their players. Asking directly from the users what they want to experience might not be that helpful as we humans do not always understand ourselves and we often disagree with each other. Playtesting, player typologies and user metrics might help the designer, but science will not take the art away from the practice.

Most design decisions are made in a flick of a second. Among bigger design problems, game designers need to constantly decide whether to choose one small detail over

another. This part of the design work is not usually visible for the outsiders as it might feel too mundane to report. I have seen game developers, especially designers, spreading an article in social media highlighting this very issue in an entertaining way. A game designer working for Ubisoft Toronto wrote an article titled “The Door Problem” in 2014 to illustrate what game designers do. Liz England (2014) lists questions that a game designer needs to find an answer for when making a game. The list starts with the question “Are there doors in your game?” and it is then followed by a variety of details that one would need to know in order to put a door in a game including such questions as “Can doors be locked and unlocked?” or “What is the size of a door?”. I have read a similar example of this issue from general design research (see Lawson 2004). In the example, designing a window to an actual house requires consideration on multiple details, such as the size, material, composition, colour etc. In the end, the details of the window need to work together with the whole system of the house. The complexity of simple decisions regarding doors or windows can illustrate how it is not always transparent for us outsiders that somebody has actually had to put thought into the details of our designed environment. The “door problem” in games calls for an additional array of questions, however. The blessing and curse of the virtual artefacts is that the design space is larger than in traditional architecture or material design. England, as any game designer, might also ask whether the door acts as a teleporter or if entering the door triggers a fleet of fantastical enemies.

Multiple design theorists claim that there is something special in design cognition (see Lawson 2004; Cross 2007; Kuutti 2009; Bonsiepe 2007). Kuutti (2009) discusses how the artefact knowledge needed in design is different from scientific knowledge. While the purpose of science is to produce *general*, *global* and *timeless* knowledge, a crucial part of artefact knowledge is always *local*, *particular* and *timely* (Kuutti 2009). For Kuutti, artefacts are not built for eternity, but rather for immediate use. Even though one needs to utilise generalisable knowledge and tools made possible through scientific efforts, a designer creates something that has not yet been created and preferably not easy to copy. The success of a designer is based on both epistemic domains.

Whereas throughout the history of science we have tried to find better ways to construct knowledge that we can trust and utilise in various, timeless ways – science is not that well-tuned towards understanding particularities, irregularities and the immediate. In order to help the designer to decide whether a game should have a certain kind of a door or not, we could set up an academic research project for finding an answer to that specific question. The value of the answer, however, would not match the value of the resources needed for the academically valid exploration. In principle, we could help to base the design decision on more solid ground, but in practice, it would not be worth it. More importantly, it would take too long. This is also visible in the modern metrics-driven game design: even though some changes in the online product could be possible to test before launching them (more widely), it is impractical (and often too expensive) to test every single design choice.

Game designer needs to decide whether a particular door in a particular room in the game is locked, possible to open at all or whether it is a window instead. Others in the team

might need to think whether in this time and age games with doors are interesting, popular or possible to create in the imagined way. Design decisions are based on the information they are able to put together and use for making the choices – on the spot. Even though experience in game design work is an important factor in this, the lessons learned might not be transferrable to the next project – they are lessons on particular doors in a particular game at a certain time.

Kuutti (2009) lists design knowledge to be local. In his example from architecture, the local refers to the location of the construct. A house, for instance, is always built on a certain place with a certain terrain. In order to design a building, one needs to understand the assumed environment. Digital games do not hold a similar role towards a location and for the past decade, games have become more mobile and detached from the materiality in many ways. Game design is not related with locality in the same way that architecture is. However, in the global market of digital games, products need to be localised with language variations and altered to fit certain cultural conventions, environments and tastes of the consumers. Some games are more tied to the locality. Games such as larps or escape rooms are played in a particular location and thus their design has to have more to do with the material environment. Games, in their multitude, have their materiality in different ways.

There is a place for scientific approaches in game design. Academia can provide tools that can help the collective of game creators improve their design work in many ways. Game research as well as research in other domains can inform the design decisions depending on the issue. Sometimes it is just a matter of education of the game developer to find suitable sources or the right people to consult. However, design knowledge has its special nature, which is a challenge for the scientific apparatus to deal with. From the perspective of *game design praxiology*, it is important to understand that *game design is timely and particular*. While we can lean on the knowledge and understanding of local by borrowing from other domains and traditions, all design is equally challenged as well as fuelled by change.

1.1 CHANGES IN THE GAME INDUSTRY FROM 2006 TO 2016

One of our main focuses at the University of Tampere Game Research Lab has been charting the unknown within the changes of the industry. Our research has been based on externally funded projects with a close collaboration with Finnish game industry. Together with the industry representatives, we have been successful in exploring the trends of the game ecosystem – usually two or more years ahead of the wave. When I started working at the University of Tampere in 2006, there were a couple of projects that were looking at the emerging trends; *IPerg* at pervasive games, *GameSpace* (that I was part of) at casual mobile multiplayer games and *SuPer* at the social of online gambling. Later on, such projects as *GaS* focusing on the trend of games as services (2008-2010), *SoPlay* (2008-2010) on social media based gaming, *Free2Play* (2013-2015) on F2P model in games as well as *Hybridex*

(2012-2014) and *Hybrid Social Play* (2016-2018) on the phygital in playful products have also been timely ahead of the curve. Change was also one of the overarching topics of our research projects *Games and Innovation* (GaIn) in 2008-2010.

Making games is about creating something new, but also adapting to the surrounding transformations. As a creative industry, the game industry is susceptible to changes as well as geared towards making things move. One of the main changes impacting the industry in 2006-2016 is digital distribution (Kerr 2017). The networked services have provided more possibilities for the players to access their products, but also for the developers to reach their audiences. A dominant model for digital games has turned from boxed products to a service model (Sotamaa & Karppi 2010). Players can download their games to their own devices whenever and wherever they want. Networked games also provide benefit for the developers as they can monitor the player activities and improve their product based on the gathered data. Games are played everywhere and this would not have been possible without the growing penetration of the mobile devices and the spread of internet connections around the world.

Whilst the early mobile game development was challenging for the developers due to the burden of the diversity in devices, an important part of facilitating the growth of the industry has been the stabilisation of the smartphone platforms, such as iOS and Android. Complementing this is the variety of development tools and environments that have grown. Especially the lowered access to such engines as Unity has impacted developers around the globe, both working on mobile games and games for personal computers. The variety of free or affordable tools has also affected the hobby scene and smaller productions. Such tools as Game Maker, Stencyl, RPG Maker and Construct 2 have made it easier for newcomers and indie developers to start making their own games and kick-starting their careers. It is much more common now to enter the industry with original creations instead of mods (cf. Sotamaa 2009). In 2017, learning the basics and starting your own game development studio is much easier than it was ten years ago.

While advances in mobile and network technologies has been a dominant factor in reaching the point where the industry is now, there have been multiple other changes in the landscape of a game developers' work. Throughout this ten-year period, the gaming technology has become so powerful that players can enjoy photorealistic experiences in the safety of their homes as well as on the road with their smart devices. The expertise in game development has grown tremendously. Game productions utilise various techniques and tools for creating and mediating visually immersive experiences, borrowing from as well as giving back to other creative industries. However, advances in visual expression have not been the only pushes for the expansion of design space of games. The seventh generation of home consoles brought in mimetic interfaces (Juul 2009), such as Nintendo Wii and Microsoft Xbox's Kinect making room for new kinds of game experiences. The current generation of gaming technology is bringing virtual reality back to gaming with such systems as Oculus Rift, HTC Vive and PlayStation's VR headset. For the journey of 10 years, there has been a multitude of gadgets and technologies sparking the creativity of the

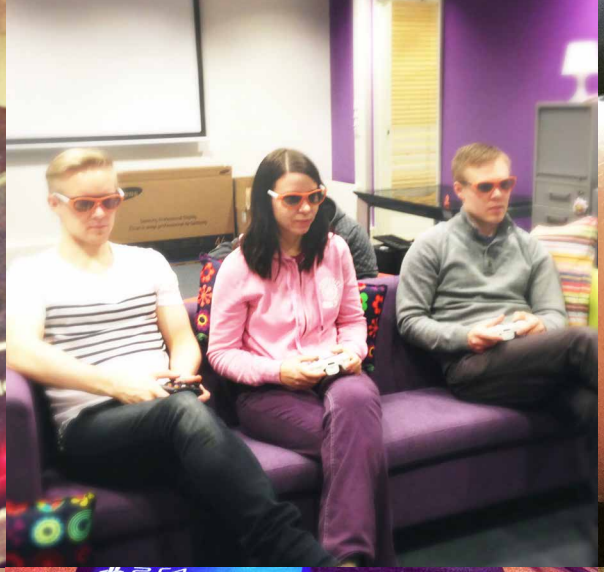
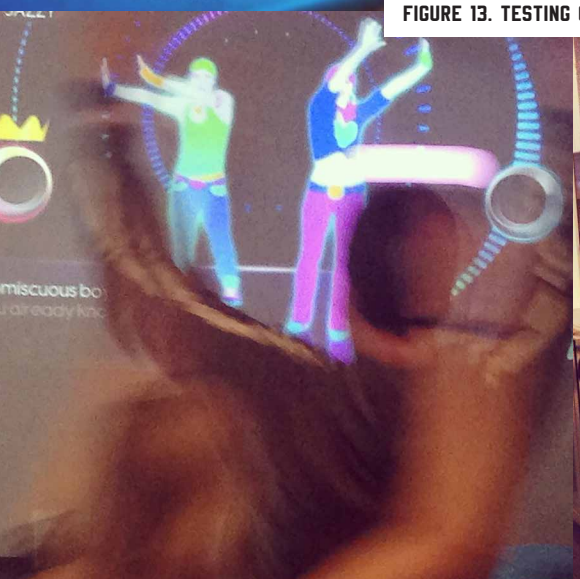


FIGURE 13. TESTING OUT NEW GAME TECHNOLOGIES BETWEEN 2006 AND 2016.



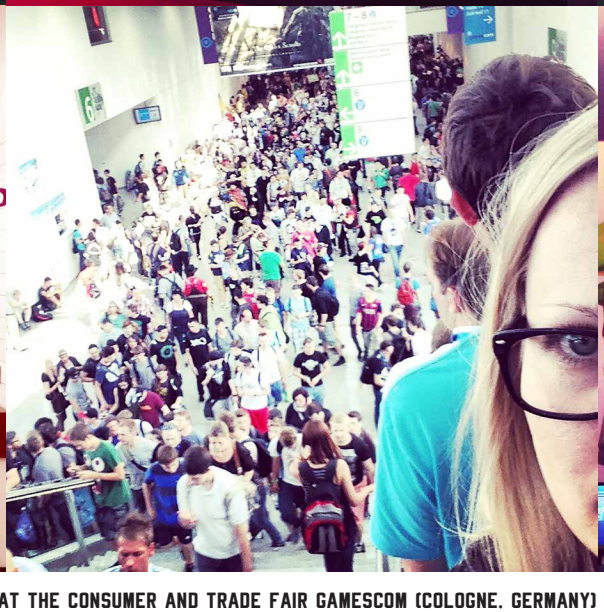


FIGURE 14. SPOTTING GAME TRENDS AT THE CONSUMER AND TRADE FAIR GAMESCOM (COLOGNE, GERMANY) THROUGHOUT THE STUDY PERIOD.

game makers. For all technological advancement, there are new possibilities to innovate game experiences.

However, for this ten-year period, the advancements in gaming technology have not been the only drivers for change – even though these have also been closely followed by the game developers and other game professionals including myself (Figure 13). The emergence of social media has impacted the way people share game experiences and socialise through play, be it games on Facebook, online gambling or even the console game experiences. The lowered accesses to game production have also created a fierce competition over customers. In 2006, it was common to offer games with a time or content constrained trial, but in 2017 the majority of games are free and most of them are utilising micropayment model. Between 2006 and 2016, there was a lot of experimentation on different business innovations in games. Games have not only entered the living rooms and daily lives of the masses, but also sparked new artistic explorations for independent artists and hobbyists. Furthermore, games have been praised for their potential in mediating different social causes, educating the youth or, for instance, engaging people to move more. Games and playful digital artefacts are everywhere – even in movie theatres, museums or metro stations.

Through the research projects at the University of Tampere Game Research Lab, conference and fair participation as well as discussions with various game developers and professionals, I have been immersed in the landscape of change (see Figure 14). I have kept myself updated similar to the game developers I have studied. In order to survive or thrive on such a volatile industry, one has to keep an eye on the changes that are impacting the future of one's craft. Every game developer knows that things are susceptible to change and that the hand of time can be crucial for the products still in the works. A game developer constantly follows the change and looks into the future. However, there can be a difference between the time perspective of a researcher and a practitioner.

In 2011, at a Finnish game industry gala dinner, I was seated with game developers and professionals from Finland. At some point, the discussion on the table turned into the speculations of the future of the industry. While we had just finished a two year-long research project at the University of Tampere exploring the service paradigm (Sotamaa & Karppi 2010), I was eager to hear what the industry actors were looking at next. However, the initiator of the topic, a CEO of one of the major Finnish game companies, declared that the biggest change that is coming is that of games turning into services. While I had been thinking about what the next uncharted area is, he was thinking about the trend that was going to impact practice. The time perspective for our futures was different, of course. There is so much on the plate for the game practitioners, that they do not often take the time to look that far into the future. The first and second generation of game developers have learned that if you trust too much on what you think is to come, you will be proved wrong. Time is also too precious to lose your focus.

Within my study period, the game industry has gone through several changes that have impacted the design space. The breadth and depth of these changes is not in the scope of this book, and each of them would deserve its own study. However, change is imprinted into the very fabric of the community of the makers. Some trends might not affect the industry widely, but others affect development on multiple levels, reaching creators over platforms and technologies.

1.2 CASUAL TURN

One particular non-technological change that has impacted the industry at large is casual turn. In the GameSpace project (2006-2008), we were set to study the trends of casual, mobile and multiplayer games. The most challenging of these was the phenomenon of casual games (Kuittinen et al. 2007) as it was a difficult topic to get a grip of. Even though the game markets are now filled with simple mobile games with massive audiences, back in 2006 there was no such thing as *Clash of Clans* **or** *Candy Crush Saga*. There was no clear view on what is "casual" in games even though the so-called *casual games sector* was growing rapidly. It was estimated in 2006 that the market for casual games would exceed $2 billion dollars in 2008 in the US alone and it was reported that half of all gamers in the US were playing casual games (Entertainment Software Association 2006). Casual games were available on various platforms such as PC, home consoles, mobile phones as well as other hand-held devices. The widest possible target group, easy online distribution and worldwide markets were seen as the attractive features of the casual games sector (Hattan 2005; Wallace & Robins 2006). The economic success of simple "web-downloadables" and other types of casual games with experimentations on different business models was forcing the game industry at large to pay attention to the phenomenon.

However, I was especially interested in how the industry actors made sense of the ongoing turn, which Jesper Juul touted as the "casual revolution" (Juul 2009). In the discussions on casual games, 'casual' was often taken to refer to the player, the game or the playing style, but other factors such as business models and accessibility were also considered as a characteristic of "casual" in games. Views on casual varied and confusion over different meanings even led to paradoxical readings as casual games were not always played "casually" (Olson 2006). Casual games were typically described as "games that generally involve less complicated game controls and overall complexity in terms of gameplay or investment required to get through the game" (Wallace & Robins 2006), or perhaps more popularly games that were "easy to learn, but difficult to master". The term "casual" was also seen sometimes as ill-fitting (Dillon 2005; Olson 2006; Wallace & Robins 2006) or there were even suggestions about rejecting the term (Dillon 2006; Olson 2006; Wallis 2006). Despite all that, it was one of the most talked about topics in the industry at that time.

The properties of the games were widely covered in the discussions of the industry representatives and larger ecosystem of the casual games phenomenon. There were various definitions available from different organisations (e.g. IGDA, CGA, GDC) or spokespersons for industry on what is a casual game (e.g. Tams 2006; Wallace & Robins

2006; Waugh 2006). The definitions mainly focused on defining a casual game as one that is easy to learn, simple to play and offers quick rewards with forgiving gameplay, which all turns into a fun experience. Sometimes casual games were touted to be connected with non-violent content and casual games were also affiliated with advergames, web games and downloadable games (Wallace & Robins 2006). There were also contradictions in the discussion. For example, multitasking was sometimes considered as an ill-favoured feature for a casual game, yet many successful casual games, like *Zuma* or *Diner Dash*, required multitasking (Waugh 2006). A genre-based approach was also common, with puzzle, card and board games genres often mentioned (Olson 2006; RealNetworks 2006). Sometimes casual games were considered as a genre of their own with various sub-genres like puzzle, *Mahjong*, word games, casual-action and card & board games (Wallace & Robins 2006).

Discussions also referred to the properties of the player. The loose "casual games" term was partly used because it refers to a casual consumer who picks up and plays casual games easily without great effort (Millis & Robbins 2005). It was also said that the casual games were aimed at a certain player type (Twist 2005). Usually *casual gamers* were contrasted against *hardcore gamers* so as to make a clear distinction between the two groups. A casual gamer was touted to be someone who is not a hardcore gamer and casual games are non-hardcore games. In addition, a third group was defined, *core gamers*, who were thought to be between the casual and the hardcore gamers. The characterisation was defined by the competitiveness and amount of involvement required in the games preferred in these groups. Hardcore gamers were those who play games that were extremely competitive and or requiring a greater degree of involvement and casual gamers play games with gentle learning curves that do not require much involvement. The core gamer, then again, was pictured in the middle (Wallace & Robins 2006). At that time, it was trendy to categorise player types in one way or another.

The topic of new user demographics was common. Casual games were said to attract new demographics such as females, non-gamers, thirty- or fortysomething, and 'lapsed' gamers (Waugh 2006). The information on gamer demographics came mainly from the press releases of casual game developers and publishers. One notion which is highlighted in these press releases is that the majority of casual gamers were women and that the majority of these women were middle-aged and older (Dobson 2006; Hyman 2004; RealNetworks 2006). In the discussion around these studies, it was also pointed out that women really "[buy the] games for themselves" (Olson 2006) and use them e.g. "as ways to rejuvenate" (Olson 2006), thereby underlining the idea that casual games had truly reached women as gamers in a positive way. However, even if the casual games were heralded as games appealing to women and especially to older women, it was also emphasised in some discussions that casual games are games only for women. Instead, the target audience was typically characterised as "games for all" (Tinney 2005; Twist 2005; Wallace & Robins 2006). Such expressions were also used as games for the mass audiences (Hyman 2004) or broadest number of gamers (Dillon 2005).

The discussion also included value-laden comments and discussion on the gamer identity. In the gaming communities, the hardcore or core gamers sometimes used the term to distinguish between the "true" gamers and the masses (Stuart 2005; Spencer 2001) so that the casual gamer was not really a gamer at all. It was further pointed out that it was typical for casual gamers to not view themselves as gamers (Dillon 2005; Twist 2005) even though according to the surveys, they seemed to play quite a lot and also at hours which could be seen as non-casual. The term "casual gamer" did not necessarily refer to the customers of the casual games sector, but it was also used to refer to players of a game considered more traditionally as hardcore games. For example, in a discussion on the casual gamers in *World of Warcraft*, some saw casual gamers as people who simply play for fun with a laid back attitude when it suits them (Whitney 2004). For some, casual gamers were simply hardcore gamers who could not find the time to commit themselves to gaming (Cybulskie 2004) or even as someone who uses the lack of time as an excuse for not being willing to "spend the effort" (Sisson 2004). Casual games were also considered to be easy and quick to pick up and drop and especially mobile platforms emphasised the "anytime, anywhere" gaming attitude that we can nowadays see as a normality (Kuittinen et al. 2007).

Apart from the game properties, distribution and business models were also seen as part of the phenomenon. One of the main issues of the casual discussion was the issue of the accessibility of casual games. The three primary points of access listed were: downloadable games to play offline, online play and other platforms such as mobile phones and gaming consoles (Wallace & Robins 2006). Other platforms included set-top boxes, toys and electronic devices, which have some sort of game pre-installed, embedded or have the ability to load games (Wallace & Robins 2006). It was all about attracting customers that were not enthusiastic gamers and such commercial potential also invited talk of business innovations. Common business models with casual games in 2006 were, for instance, try-and-buy, advertising based and subscription models (Casual Connect Magazine 2006; Tams 2006; Waugh 2006). In addition, the later popularised model of in-game micro transactions was discussed (Gough 2006), new advertising sponsored models (Olson 2006) and an emphasis on experimentation with business models in the future were pointed out. We can see now how these new winds were to also affect games outside the casual games sector.

Some topics were about an as yet unnamed area of, free-to-play games. Conversion rates (of how many customers who try the game who will also buy it) of casual games was one common topic. The conversion rate in 2006 in casual games was said to be around 1 to 2% (Clark 2007, Wallace & Robins 2006), and in web-downloadable games around 0.5 to 2.5% (Wallis 2006) so paying for casual games was considered as only the tip of the iceberg (Kuittinen et al. 2007). However, there seemed to be no clear data of players who were playing embedded, bundled or pre-installed games like *Windows Solitaire*, *Minesweeper* or Nokia mobile phone's *Snake*. While targeting the widest possible audience, knowledge of player demographics was considered important and the mentality of user-centred design was deemed crucial for the developers (Kuittinen et al. 2007). Conversion rates were taken as an indication of potential consumers but it was also speculated that the casual game

mass markets were much harder to reach and could be very much “here today, gone tomorrow” (Wen 2006). At the same time, it was suggested that there was a shift from one group to another: casual gamers evolve and become more demanding (Hyman 2004; Waugh 2006; Wen 2006).

The very same discussion was also pointing out the yet unformed impact of social media. It was thought that communities and social aspects would have a significant role in casual games (Dillon 2006; Twist 2005). For instance, there was discussion on the *alone together* mentality of the social aspect of casual games (Ducheneaut et al. 2006), a type of experience that some MMO gamers enjoy, spectator experiences (Drucker et al. 2002) or asynchronous casual multiplayer experiences (Bogost 2004). There were also contradictory views on the social aspects of casual games. For example, some stated that casual gaming is a solo based independent experience and there is no room for competition in casual games which is usually a result of a strong community (Tinney 2005).

The characteristics of casual games and the different expectations of casual gamers also called for different kinds of production strategies. Casual games were said to be developed at a faster pace with smaller teams and lower development budgets compared to retail PC and console games. Some were discussing as small teams of three to five persons, with a development time of six to twelve months with relatively low costs to develop a typical downloadable casual game (Waugh 2006). Thereafter, the risks were touted to be lower with small budgets and a hit game can provide a big return on investment. Low risk and other factors were also connected to the potential of more experimentation and innovation (Waugh 2006; Stuart 2005; Brodie 2007). It was a great springboard for many new start-ups too. These production strategies have also reached other sectors nowadays.

The discussion and reflection on the topic of casual games was diverse. Discussions covered the properties of a game, gamers, play behaviour patterns, attitudes towards games and game cultures as well as factors of design process, production and marketing. The discussion revealed a reflection to a large area of game phenomena – not only certain themes or design features, technology or user groups but a quite holistic reflection was happening within the industry during the period of our investigation in 2006-2008 and beyond (Kuittinen et al. 2007).

The casual turn matured our understanding of digital games. While we were studying the casual phenomenon, we came to the conclusion that traditional gameplay-centric models (e.g. Ermi & Mäyrä 2005; Perron 2006; Fernandez 2008) were not enough to capture the depth of the experiences game developers were designing. If the world outside the game system was considered at all in the previous models, it was usually pointed out as the context of the social situation immediately surrounding the play (Stenros et al. 2009; de Kort et al. 2007; Ducheneaut et al. 2004) or cultural context of the players (Salen & Zimmerman 2003). However, whether the design model focused on the formal structure of games, the experience of playing them or their cultural value, the continuum of gameplay experience as it connects with other experiences was neglected, now highlighted with

the pressure of the overarching change in games. The issues addressed within the discussions on the casual games phenomenon seemed to emphasise the relevance of the factors outside the play sessions, such as the accessibility of a game. For the design of casual games, it was relevant to also cover the larger experiential context because the experiences that players were seeking were not necessarily immersive and engaging (c.f. Ermi & Mäyrä 2005; Csikszentmihalyi 1975; Sweetser & Wyeth 2005) or even meaningful (c.f. Salen & Zimmerman 2003). The widening sense of the domain for design relevant to game experiences was elaborated in our Expanded Game Experience (EGE) model (Kultima & Stenros 2010).

Our Expanded Game Experience (EGE) model, therefore, tried to capture the conception of different user states, affordances for the player and thresholds for use for each step of the game experience (Kultima & Stenros 2010). In the EGE model, six phases in a cycle were identified: *information retrieval, enabling, preparations, gameplay, afterplay* **and** *disposal* (Kultima & Stenros 2010). We argued that when designing game experiences for wider audiences, the focus is on lowering the thresholds and concentrating on design in properties that can make games easy to access, fast to adopt and safe to play. Coming to 2017, the issues of thresholds are important, not only on attracting a wider audience, but in various ways to affect the user retention – as customers with lowered thresholds for play are indeed also difficult to keep. The modern mobile game development is very much concentrated in user acquisition, retention and metric driven development. Game developers need to worry, not only about the gameplay experiences, but also about the wider context of the experience and its continuum.

1.3 NORMALISATION OF DIGITAL PLAY

The casual games phenomenon indicated a larger transformation in digital games. The phenomenon broadened the spectrum of game experiences and emphasised how games can have a secondary role and instrumental value blending into the everyday lives of different people in their changing contexts. This transformation of digital play, understood as an enlargement of player groups and the habits of the players, goes along with the other transformations in modern lives. Digital and physical worlds have been increasingly merging in many areas in recent decades. As digital tools and environments have become part of the quotidian of wide groups of people, the phenomenon of digital play has also become more complex. The direction of the change was not surprising, such variation in the use of games already existed outside the digital world. More profoundly, the casual games phenomenon was about the *normalisation of digital play*.

The normalisation of digital play, embodied in the casual turn consisted of two larger trends:

1. **ENTRY OF NEW AND HETEROGENEOUS USER GROUPS.**
2. **GAMES AS A SECONDARY ACTIVITY AND INSTRUMENTAL USES OF GAMES.**

Within the discussion of casual games, it was often pointed out that females, especially those over 30 years old, enjoyed playing casual games. The division between the genders was more uniform than in most digital games, even to the point that paying customers were reported to be predominantly females in some game services (Casual Games Association 2008). However, casual was not only a gender issue (Hillis 2007) but rather of games with heterogeneous groups of players with different backgrounds, skills and interests. In the discussion of casual games, it came about how players may have different reasons for turning to digital games, independent of their level of game literacy, skills, time, money and other factors. The change in player groups and play habits transformed the field of digital games and broadened the consumer base and play environments. However, it was nothing new in the broader spectrum of games. Games had been used for different functions throughout their history before computer games. If we take a look at games outside the digital world, they have always been played by a variety of different people. Games, such as different outdoor sports, children's games, tabletop games and card games are such a common part of our culture that it seemed to be difficult to parallel them to the phenomenon of the digital play – the new. But it was new to many video game developers.

1.4 HOW DO GAME DEVELOPERS KNOW?

For the duration of my studies of game developers, I have been visiting various industry conferences, get-togethers, seminars and trade fairs. Despite the many lessons learned from our research projects and other academic instances, industry events are the main sources for my overall understanding of the game industry. In fact, industry conferences are at the centre of the epistemic cultures of the game developers. The presentations of the professionals (Figure 15) afford information that is timely and pressing, but more importantly conferences and other social gatherings are places for networking and informal knowledge sharing. Shared lessons on game development have been crucial factors in many success stories as formal education has had very little to offer and game research under resourced. Most of the industry presentations are, of course, personal reflections on the experiences with particular products and processes, as already discussed hereinabove in the heart of the design knowledge.

During the casual turn, many game developers were reflecting their relation to game design. For the week in Germany at the GDCE 2011 conference and consumer fair Gamescom, I had booked an entire hostel room to share with a group of game developers. At the shared breakfasts, dinners and after parties, we chatted a lot about the changing environment of the industry and especially the budding free-to-play model. There were a lot of opinions expressed about the recent developments pushing developers out of their comfort zones. The discussions lasted the whole week and while we were already packing, one developer summarised his feelings: "When casual games came, I was feeling confident with simple retro games, but when free-to-play games came I felt like I didn't know how to design anymore". Free-to-play model was impacting the design in a very new way mixing the business design into the game designer's work.

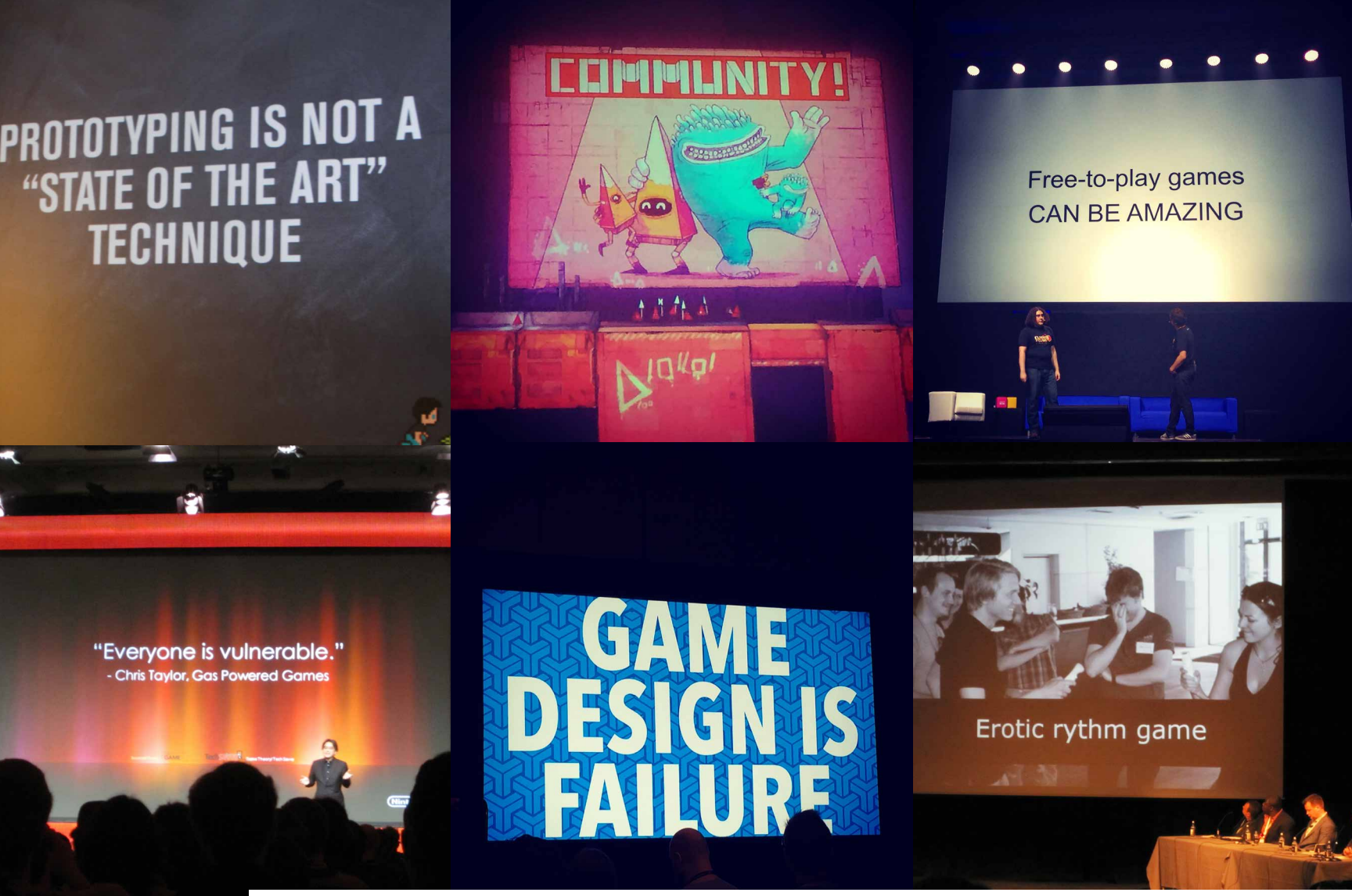
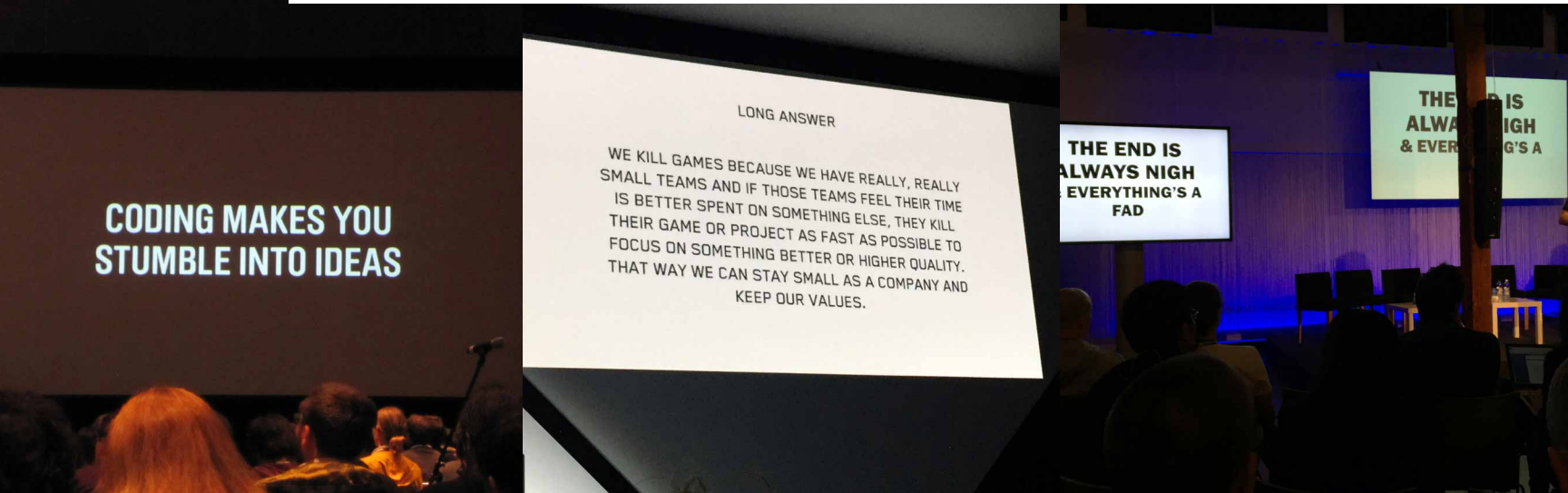
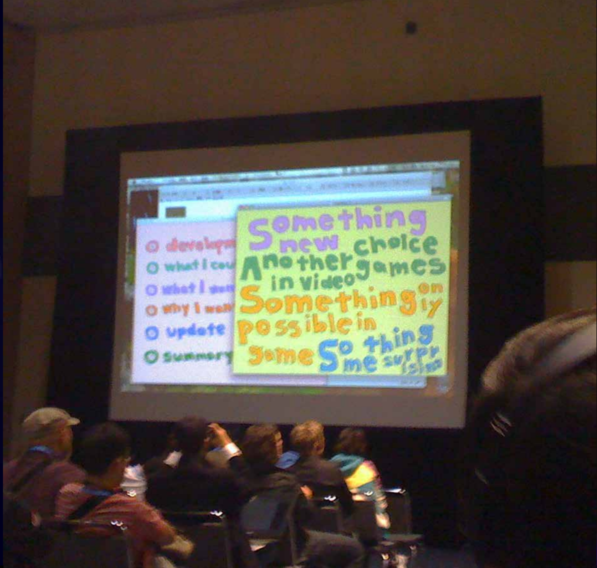
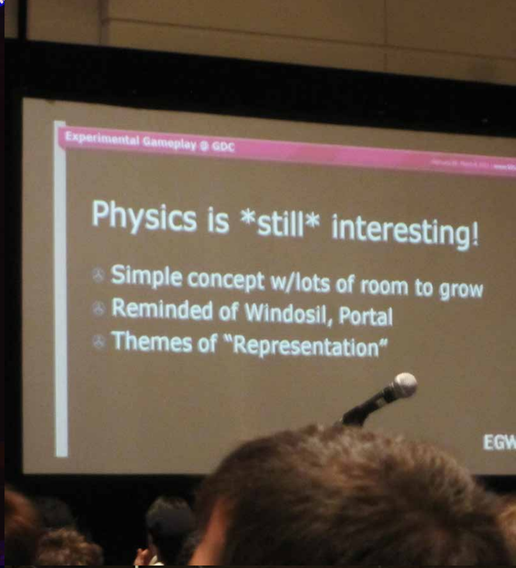


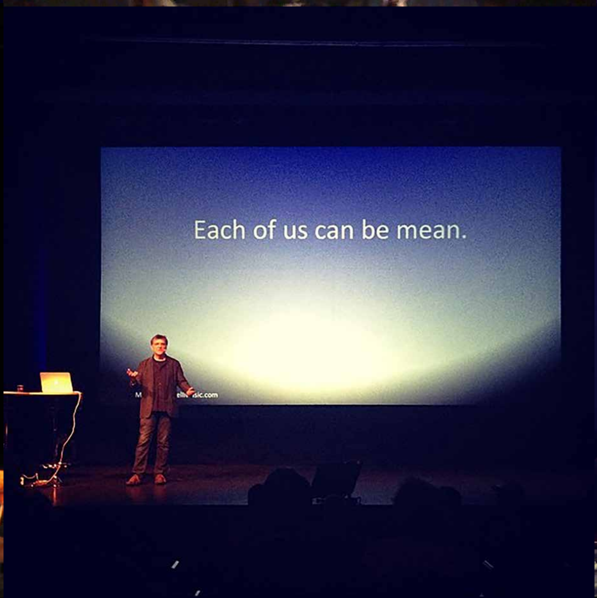
FIGURE 15. SOME OF THE SLIDES FROM GAME DEVELOPERS' PRESENTATIONS I HAVE CAPTURED OVER THE YEARS.



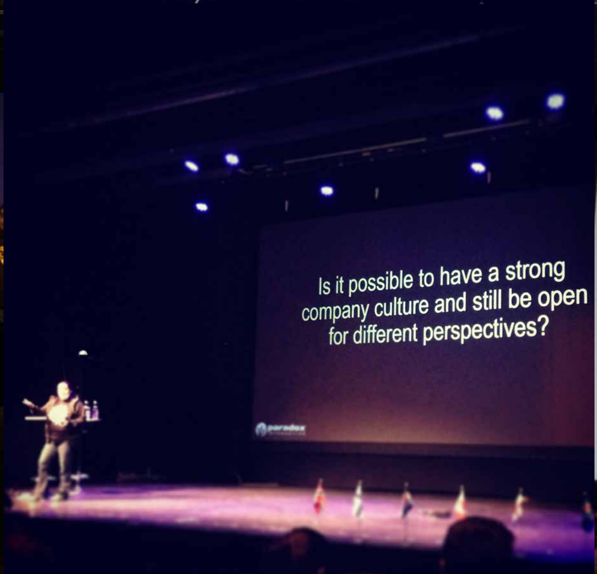

update
Summary

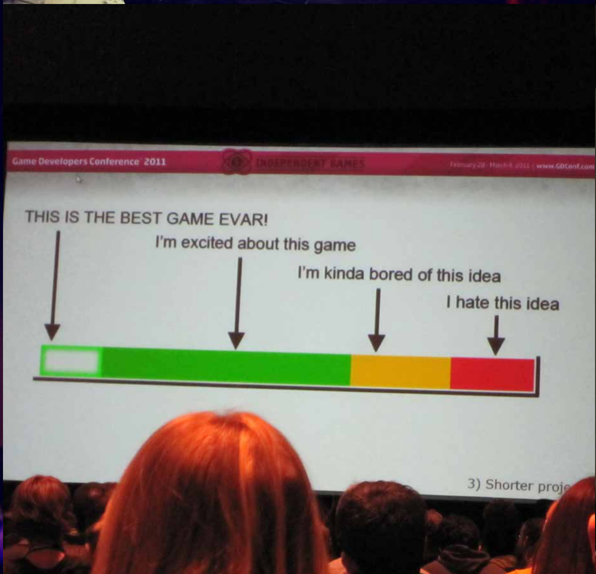

“I’M SORRY,
BUT I CANNOT
TALK T YOU
WHILE ARE
MASTU TING”

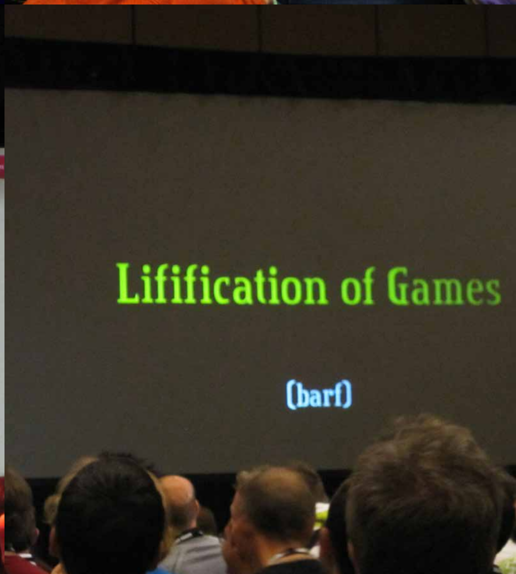

Experimental Gameplay @ GDC
Physics is *still* interesting!
Simple concept w/lots of room to grow
Reminded of Windosil, Portal
Themes of "Representation"


Each of us can be mean.


I WANT TO MAKE GAMES FOR EVERYBODY.
BECAUSE EVERY ONE OF US DESERVES TO PLAY.


Is it possible to have a strong company culture and still be open for different perspectives?
paradox


Game Developers Conference 2011
INDEPENDENT GAMES
THIS IS THE BEST GAME EVAR!
I'm excited about this game
I'm kinda bored of this idea
I hate this idea


Lifification of Games
(barf)

The changing environment of a game developer requires a lot of learning. Be it a design problem that needs to solved, new technology that needs to be adopted, new tools and processes that are tested or overall changes that affect the work at large, it is a constant learning process. Many game developers enjoy charting the uncharted. In 2013, at a small seminar, I organised and interviewed two game developers on the stage of a local museum. The purpose of the seminar was to provide insight to the public of the work of two Finnish developers while their games were displayed in the museum. I don't remember what the exact question was, but an eager participant from the audience asked something about getting into the industry, to which the other developer replied that "If you like learning, you will like game development." This is something that has come up frequently in the discussions with game developers. To some degree, one needs to find a certain enjoyment in the process of discovery, which is very rewarding, but it can also be tedious and consuming at times.

The community of game developers is overlapping with that of game researchers. We share the same passion of games, but also discovery and learning. Our needs and means for knowledge might be different, but for both communities, the past decade has been very interesting and rewarding – yet consuming. It is difficult to stay up to date with the various movements within the ecosystem and at the same time trying to focus on a product or an academic career. Sharing information in various, also informal ways becomes a necessity. Although there are some gaps in the communities, I have seen more game researchers participating in the industry conferences for the latter part of my research period. For instance, Game Developers Conference (GDC) in San Francisco, California is a central place for the Northern American game scholars and educators to come together and share knowledge with each other and with the industry (Figure 16). Other conferences are the Casual Connect in Europe and the US, several other GDC conferences around the globe and, for instance, the annual Nordic Game Conference in Sweden, bringing together the Northern European game developers, students and educators. The audience in all of these conferences is international, even though there is always a stronger representation of the locals. Similar venues are spread around the calendar year and around the globe to the extent that there are not enough new topics to share and the content will start repeating itself. Some developers are celebrated and experienced speakers, while others only enjoy the shared insights in the audience (Figure 17).

Many game developers cannot afford or do not have the time to travel to the various industry conferences. For the past decade, the number of smaller events and get-togethers has been growing with the same rate as the industry itself. The presentations might be less posh and speakers less famous, but communities that share their knowledge seem to be stronger in the midst of the changing landscape of games. For those who find networking difficult or a waste of time, there are also a lot of materials available on the internet. For the past few years, conferences have also started to record or stream their presentations. Even though many of these are available for anyone to watch, there is also business around the industry lectures.

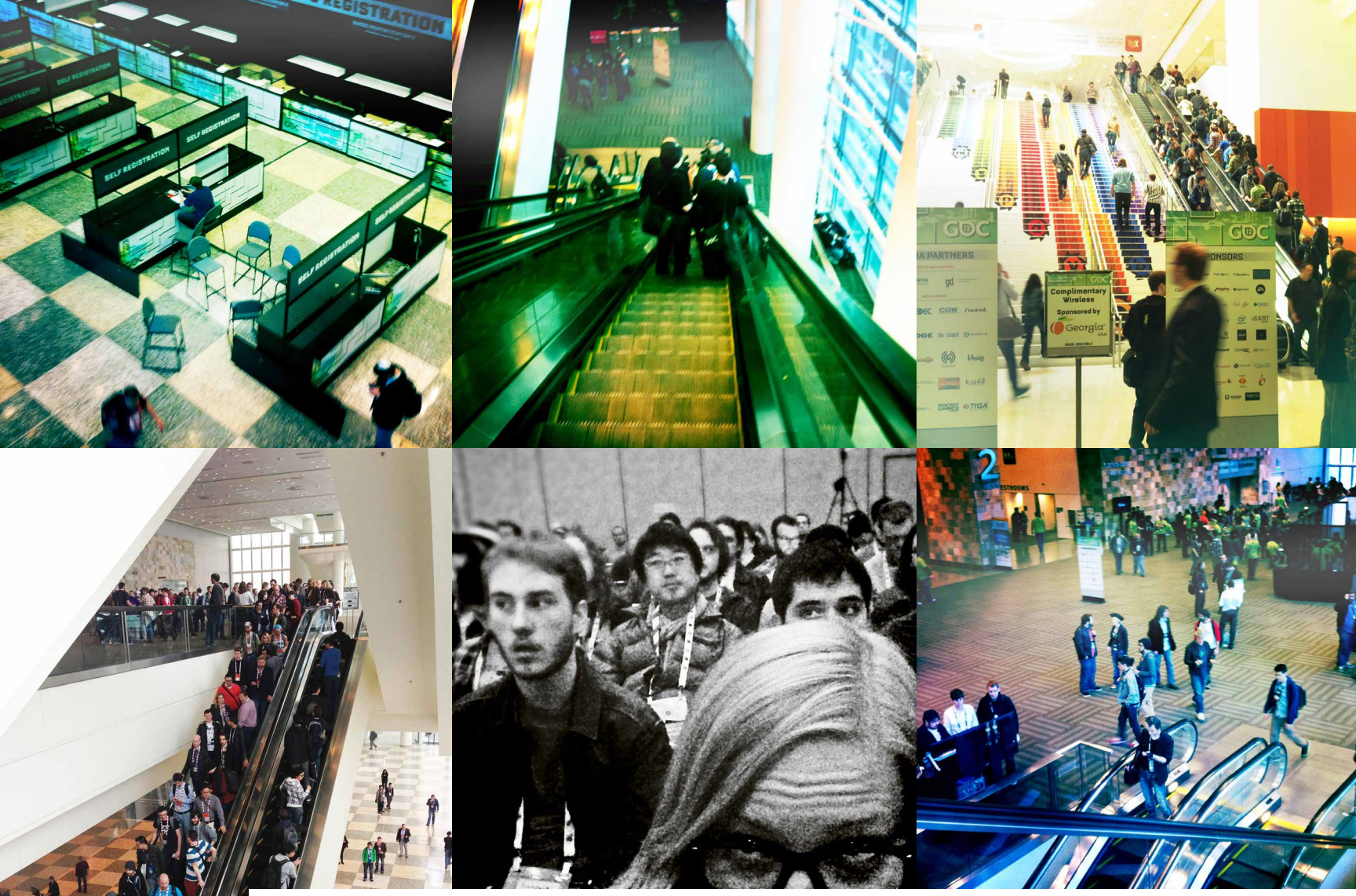


FIGURE 16. PEOPLE AT THE MOSCONE CENTER IN SAN FRANCISCO AT GAME DEVELOPERS CONFERENCE (GDC).

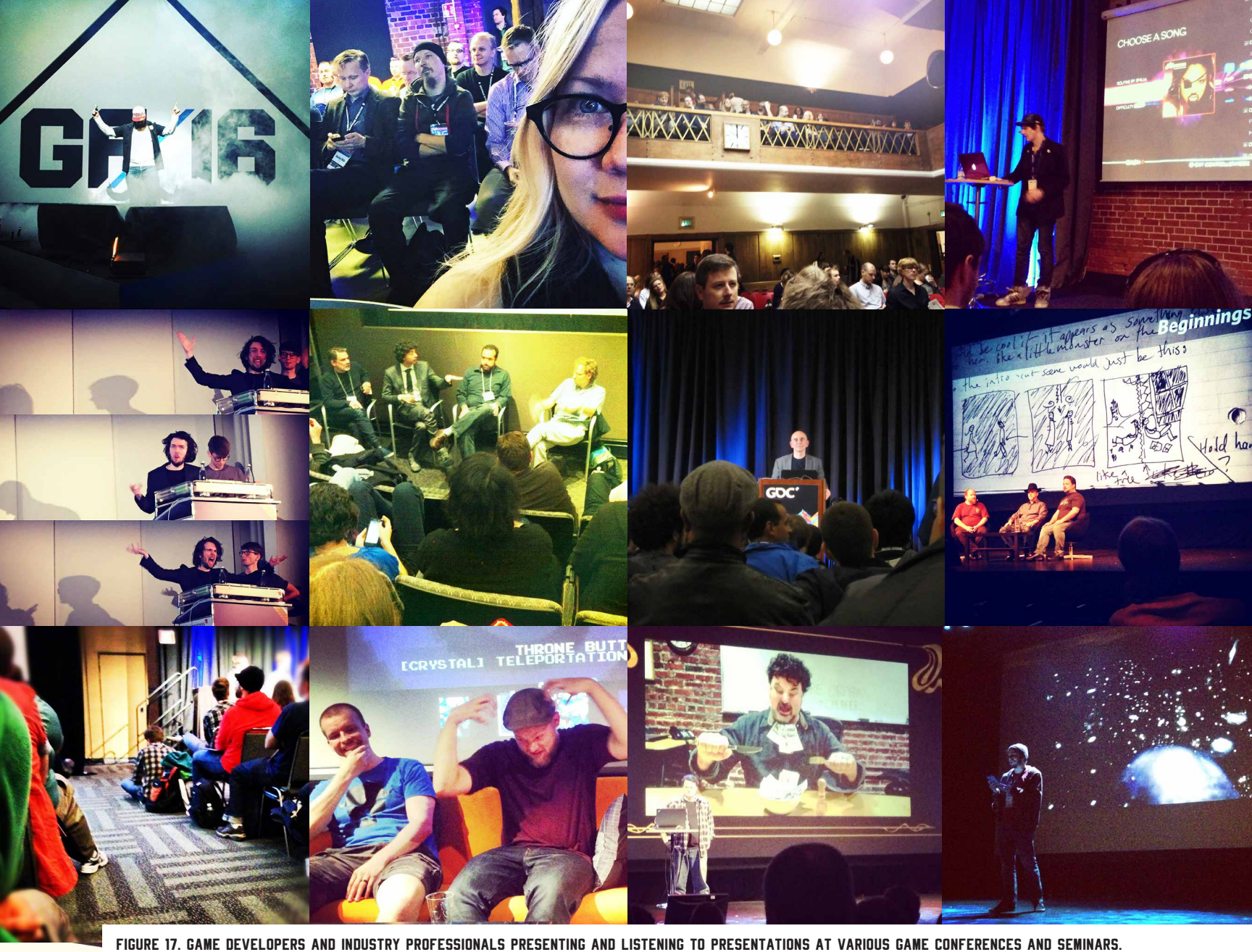
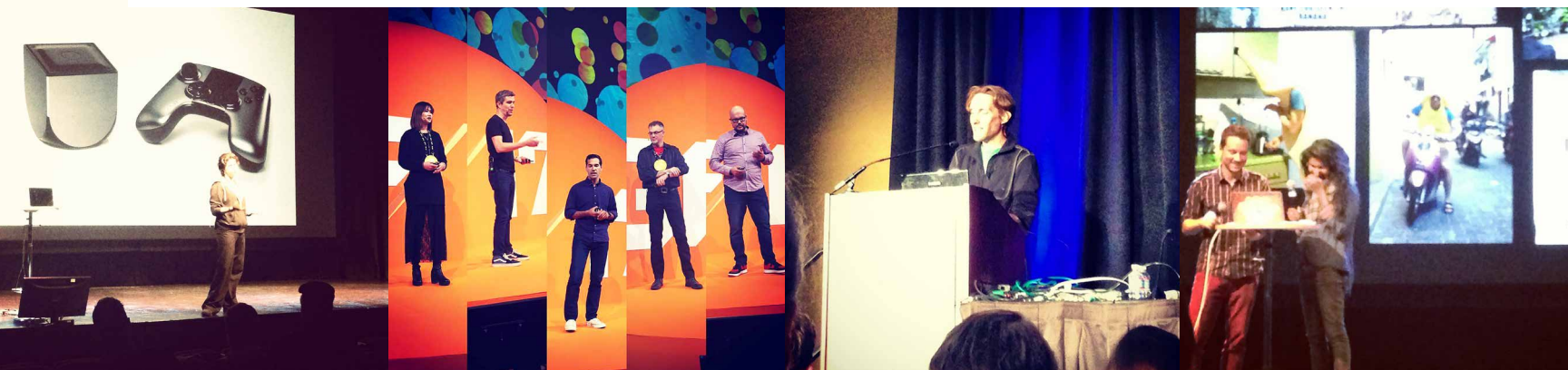


FIGURE 17. GAME DEVELOPERS AND INDUSTRY PROFESSIONALS PRESENTING AND LISTENING TO PRESENTATIONS AT VARIOUS GAME CONFERENCES AND SEMINARS.



An example of this is the GDC Vault. UBM Tech, the owner of the GDC conference brand maintains an online service for their events offering some material for free and others with a fee. The participants of their conferences gain yearlong access to the service. Many developers use their conference time for meetings and see the presentations afterwards. Other conferences might maintain a less elaborate service by resorting to video sharing services like YouTube or Vimeo. UBM Tech also publishes an online magazine Gamasutra.com which collects professionals' views on their products and processes and aggregates hundreds of developer blogs. The industry speeches, presentations and writings around the internet provide fast paths for the current state of the art for the outsiders as well as to the insiders of the industry. The usefulness and reliability is just a matter of literacy skills for both parties.

In order to navigate in the vastness of the information on game development, design and business, one needs to develop a skill of interpretation and synthesis. This was cleverly highlighted by a successful indie developer Rami Ismail, at Pocket Gamer Connects Helsinki keynote in 2015. He reflected how the game industry is moving fast and it is almost impossible to know what is going to happen even in a near future. He further guided the participants of the conference to think about how the conference speeches hold a truth for a particular game project on a particular platform and in a particular slice of time. He encouraged his peers to go to the talks, but to form their own opinion by putting together the pieces of information as trends instead of straightforwardly transferrable lessons.

A bit more timeless information on games can be found in books. Between 2003 and 2009, there was a surge of game design literature (e.g. Salen & Zimmerman 2003; Koster 2004; Swink 2008; Fullerton 2008; Schell 2008). These books have been read both by us researchers as well as by the developers. I have seen piles, lists and bookshelves of these books at game studios, but very few game developers have read them from cover to cover. Many design cook books, reference books and "bibles" for game industry explore the basic components of digital game design from story to characters and from game tech to production processes. Some books are more of a mixture of academic theories and a design perspective, such as *Rules of Play* by Zimmerman and Salen (2003). These books are also referenced in academic articles and used in classrooms of game education. The timely nature of game design can be noticed while reading these pieces: some thoughts are outdated, whereas some are still useful.

Some game developers read game research papers, but there is simply not enough time for vast explorations into the academic realms. For instance, studies on the user demographics and behavioural patterns of the gamers can be useful for a designer. However, more typically, practitioners utilise non-academic sources of information: surveys conducted by commercial actors such as NewZoo or Casual Connect are spread around the development communities. The most useful data for the current game development practice is gathered on the servers of the online games providing basis for metric-driven design processes. The developers can try to figure out which parts of their design are pushing the players away from the game and which elements keep them coming back.

Businesses based on analytics have been growing with a rise of online mobile games, but not all developers can afford to access these services and not all developers have the skills to set up their own analytics or use the data. While metric-driven processes have been rising for the past years, there is still a lot to learn regarding the potential as well as limits of it.

Much of the game design knowledge is constructed within the game productions. Designers learn by doing and a big part of the production is creating versions that can be run and tested in various ways. The metric-driven design does not supersede all the more traditional ways of iterative processes discussed in chapter 3. Even now, a "game designer does not come in a box" (Fullerton 2008), meaning that a published game needs to be able to convey the intended experience to the player independently from the active participation of the developer. If the players do not understand what they are supposed to do in the game or how to access certain parts of the product, they miss out on the designed content. In order to put together a successful experiential product, the game developers need to do a lot of prototypes and user testing. During my study period from 2006 to 2016, the testing practices have been one of the main areas that game developers have tried to improve on and to develop practices to best fit the pace and realities of the productions – still many companies struggle with it in terms of time and resources.

Lawson and Dorst (2009) describe how designing remains one of the least understood of all our cognitive powers and it is the most difficult to learn as each project is unique and there is no magic formula for a process that will guarantee success; designing is unpredictable. For Lawson and Dorst, designing is a complex collection of skills. It has to be at least partly learned in practice. Despite the changing environments, there is a difference between a skilled and experienced designer (Lawson & Dorst 2009). However, we know almost nothing about the professional development of game designers.

1.5 TIMELY AND PARTICULAR

The change is affecting game development and design on many layers. Some lessons hold true for an extended time, but it is difficult to tell which lessons should be treated as general and which fall into the domain of the particular. Designers work with particularities: they need to know whether a design choice in their game is going to work in relation to the goals of the project. The role of change in game design is intertwined: in essence every single game is changing something from the previous games, and at the same time the changes around the project affect the landscape where the game will be played at. Change is part of the practice. A designer needs to actively seek to differentiate and at the same time update their understanding of the existing. New things never come out of thin air and in order to make them work, a designer needs to understand the patterns of the domain. To create something new for the domain, one has to produce new knowledge on the spot and specifically for the project. In design, timely knowledge always meets the timeless knowledge and particular is valuable through general (cf. Kuutti 2009).

Why is casual turn so important for the period of 2006-2016? Almost no game developer has been able to avoid the impact of it within their practices. The turn defines the modern game industry, not through the power of a certain segment of games or technology, but rather as an overarching normalisation of digital play. Casual in games was a trend that brought diversity through the heterogeneous player demographics and a wider acceptance of digital play as well as made the expanded experience of games more important also to the work of the developers. Computer games have grown out from the marginal into mass entertainment, maintaining and creating new niches and subcultures at the same time. Through this time period, the game industry has expanded its pallet of design. Games can be many, they are many and the design of them is always tied to timely and particular pushing the medium towards more variety.

However, Dorst (2009) discusses how design is always affected by the individuals. Even though there seems to be some sort of lasting turbulence, people do not change that fast. For many game developers, the casual turn forced them to reflect on their own values and appreciations for games as well as reposition their attitudes towards the industry. At the same time, the changes in the landscape attracted creators that were valuing a different type of design and purposes for games. This pluralism of personal values of developers is discussed in the next chapter.

THIS CHAPTER IS PARTIALLY BASED ON THE FOLLOWING ARTICLES:
KUITTINEN. J.. KULTIMA. A.. NIEMELÄ. J. & PAAVILAINEN. J. 2007. CASUAL GAMES DISCUSSION.
KULTIMA. A. & STENROS. J. 2010. DESIGNING GAMES FOR EVERYONE: THE EXPANDED GAME EXPERIENCE MODEL. KULTIMA. A. 2015. GAME DESIGN RESEARCH.

CHAPTER 2: GAME DESIGN IS VALUE PLURALISTIC

“Why would anyone play such a shitty game?” This question was frequent among the game developers in my network during 2006-2010 when casual games were becoming more and more popular. It seemed to me that the casual turn was alienating some game developers from their craft, making them feel like strangers in the cultures they were co-creating. It was difficult for the developers with a hardcore gamer background to understand the attraction of the simple and non-challenging games in comparison to that of the rich game worlds they had grown to appreciate and that they were passionate about.

In our study on the discussion of the casual games (Kuittinen et al. 2007), we found out that the complex matter of casual translated into various different topics in games. Some discussions were value-laden and normative: a casual gamer was not considered as a “real player” or casual games had poor design. Coming from a gaming hobby, some game developers had a hard time understanding the success of the casual sector. Many discussions turned into discussions of values: What is a good game? How to design a good game? Why would someone choose a game like that over another? Why would they play games that are so bad?

Casual games’ design seemed to contradict the rules of traditional, hardcore game design. Where casual games fashioned mundane and safe topics, hardcore games were about fantastical worlds and dark narratives. In order to create meaningful experiences, hardcore games were designed to be challenging and complex, whereas casual games were all about simplicity and accessibility. For many individual game developers, the former was

the better and the latter was the less valuable, but not for everybody. Around 2006-2010, the topic of user-centred design in games was popular in the industry discussions. Many game designers I met were reflecting how it is important to design games for the players and not games for themselves. For some, the professional pride of being a game designer was tied to being a *player's advocate* mimicking the lessons from Fullerton's design book (Fullerton et al. 2004; Fullerton 2008; Fullerton 2014). Advances in playtesting practices, market studies and participatory design practices have helped such developers.

Digital games have a relatively short history, but as discussed previously, a lot has happened even in less than a decade of the recent past, mixing digital also with various traditional play experiences (Figure 18). The game industry has grown and the games have become a form of mass entertainment. Game products are diversifying and there are more opportunities to find personally appealing playful experiences than ever before. Games are loved and cherished around the globe by their fans. For each popular game, there is someone who holds it as an example of the most excellent design and someone who deems it as a design failure. Game developers are also passionate about their craft and the creations of their peers: some value one piece over another and some complain about the shortcomings of the other. Sometimes discussions can be heated: the differences in tastes are difficult to solve.

Game developers draw design ideas from their personal game experiences. Creating a new game is not only about inventing new ideas, but a lot of ideas need to be recycled in order to create functional products. A designer's role is to solve design problems and the ability to solve these problems is tied to the possibility space that they are aware of (Lawson 2005). Game developers play games for entertainment, but they also play them to educate themselves with design conventions.

Design conventions are repeating features or patterns already established in the design space of a certain domain. For instance, game genres hold information of certain repeating patterns of themes, game mechanics or other features. In a platform game, a double jump is a popular design convention. With a double jump, the player can access higher places with pressing a jump button twice moving their character in a game world. In a shooter, a white package with a red cross is a design convention of a health boost. But design convention can be anything: a certain way of accessing new levels in a game, popular effect in highlighting important objects or patterns of puzzle design. Design conventions carry information on what is possible, popular or even enjoyable in games.

The relation between game design and the playful experience is not straightforward. Salen & Zimmerman (2003) suggest that game design is *second order design*. This means that a game designer can only indirectly design the players' experience by directly designing the rules of the game (Salen & Zimmerman 2003). It is difficult to predict what the set of rules in a game actually affords and how the player will use the play artefact. The same elements in different systems, but also the same elements in the same systems do not always end up with the same experiences. Design can support different play activities, but it is more

difficult to trigger exact reactions or bring about specific experiences – players get excited about different things. Even though creating playful systems that afford experiences through interaction is a challenging design task, the notion of second order design is not limited to game design. Whenever someone is designing an experiential product, one can only design the experience indirectly by directly designing the features of the artefact. Experience is hard to design since it involves so much subjectivity.

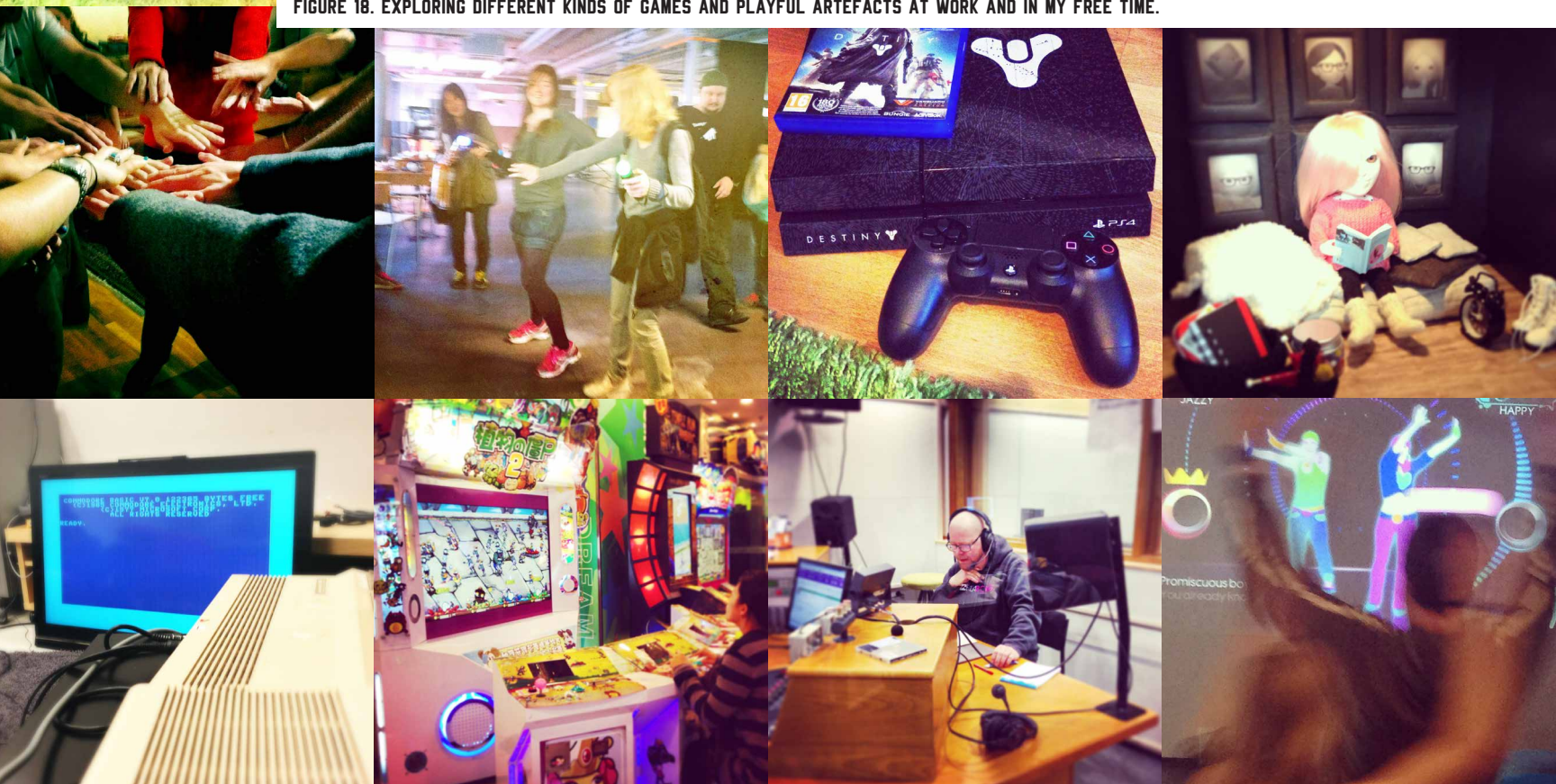
In creating subjective experiences, game designers cannot base all their decisions on market studies, metrics or play testing. Lawson (2005) notes how design decisions involve a lot of value judgments as they aim to deal with questions of what might be, could be and should be instead of what is and why this is so. On a macro-level of game development, the should-be might come from the creative director, client or a publisher – but on a micro-level design, decisions also reflect the developers themselves. For some, commercial success is all that matters or that it is all about popularity among the players, and others value the freedom of expression, while some might seek a societal impact with their games. We do not expect one game to meet all these goals. There is always a possibility to create another game with other goals. Implicitly or explicitly, each game development process borrows from a set of values. We can compare whether one game is better at attracting revenue than the other, or if one has more players than the other; but it is more difficult to argue that only commercially successful games are valuable or that the self-expression of an artist is all that matters. Subjectively, we can choose to value one thing over another, but in general *game design is value pluralistic*. There is room for a lot.

2.1 THEORIES OF DESIGN VALUES

Architecture and industrial design have a long history in theory forming. Many of these theories are shaped within the domains of material productions. However, theories aiming at a more general understanding of design have a lot to offer games too (Kuittinen & Holopainen 2009). In order to broaden my understanding of *casual game design values*, and to explore the value conflict, I examined three conceptual models and frameworks from architecture and industrial design: Holm's (2006) designer's distinctive design values, Lawson's (2005) guiding principles and Schön's (1984) appreciative systems. All of these hold a belief that designers do not begin afresh with a blank mind, but rather have their own motivations, their own reasons for wanting to design and their own sets of beliefs, values and attitudes that guide their work (Lawson 2005). Often these values are not voiced, and become explicit only when there is a conflict of opinions. Design values work in the background, affecting the decisions of the designers (Lawson 2005; Holm 2006).

In relation to his theory of the design problem, Lawson (2005) discusses a concept of *guiding principles*. For him, each designer has a certain collection of ideas, beliefs and values that guide their work. Guiding principles affect the designer's work spanning over many projects rather than affecting just one and the collection the principles is likely to grow and change through time. For some designers, these principles are vague while others hold their principles with greater conviction. In some cases, the set of guiding

FIGURE 18. EXPLORING DIFFERENT KINDS OF GAMES AND PLAYFUL ARTEFACTS AT WORK AND IN MY FREE TIME.





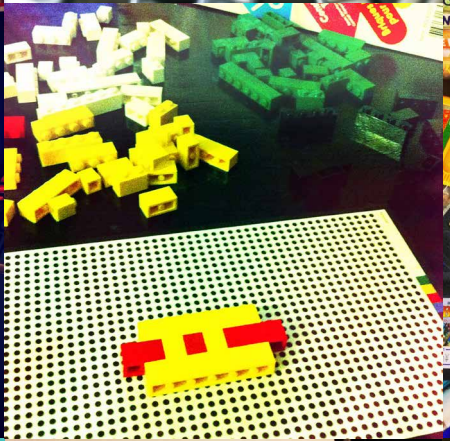

CHROMA SPLASH
Choose a Game

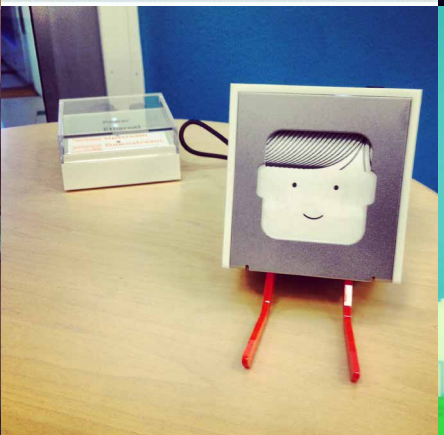
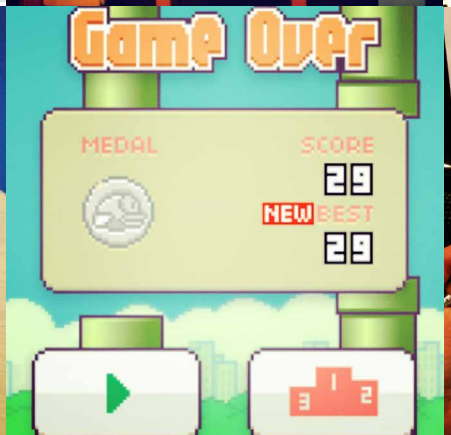
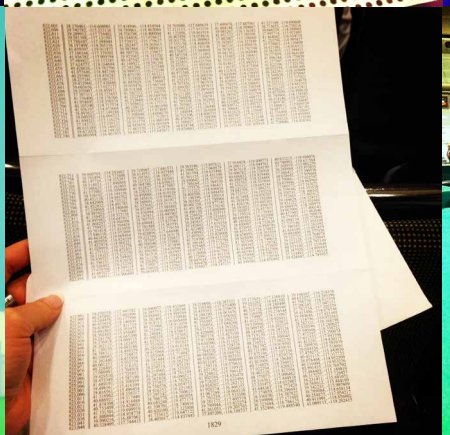


STREET FIGHTER II



175 xp
Send Kati
Kati
Andrea
Keko
Aki
Katri
Hannawari



GAME BOY


Game Over
MEDAL
SCORE
29
NEW BEST
29



principles can form a coherent design philosophy, but for many it is only a collection of disjointed and ill-defined ideas. Guiding principles are also tied to the development of design expertise. Lawson notes how higher level expertise in design seems to be in connection with the development of the principles. The designers are guided by their set of beliefs and values, but through time they also learn how to manifest their ideas and values in their work. The impact of the guiding principles on the design can be quite considerable and thus the underlying beliefs and values of designers are relevant for understanding design (Lawson 2004, Lawson 2005).

Central to the core of the Schön's design philosophy of reflection-in-action (Schön 1984) is the notion of *appreciative systems*. He borrows the concept from Vickers (Schön 1984; Vickers 1983), who proposed that appreciative systems are the basis for a design project's evaluation. To Schön, architectural designing can be understood as a kind of experimentation, and "It is only within the framework of an appreciative system - with its likings, preferences, values, norms and meanings - that design experimentation can achieve a kind of objectivity". Although a designer's preferences are subjective, and may even be arbitrary, the designer can determine whether his actions produced an enjoyable product (Schön 1984). The evaluation of the product as an object of preference is part of "in action" reflection within the design process. Therefore, the evaluation of a project is grounded in the practitioner's appreciative system which forms an internal dialectic between the designer's appreciative system and her decisions.

As Lawson (2005) asserts that the content of designers' guiding principles is as varied as the designers themselves, Holm (2006) illustrates this with mapping architectural and industrial *design values* into a cohesive framework. According to Holm (2006), values operate on a social and personal level often occurring implicitly and are, therefore, difficult to extract. He notes that individuals are not rational decision-makers and that designers tend to adhere to a value set and not a single value. Holm (2006) organises the distinctive design values of architectures and industrial designers into five main sets: *aesthetic design values, social design values, environmental design values, traditional design values* **and** *gender-based design values*. For instance, the set of aesthetic design values contains such values as artistic aspects and self-expression guiding the design process characterised by a belief that a designer should include their spiritual self and creative imagination in their designs. Within the *values of social change*, there is, in example, the *value of crime prevention* based on the belief that it is important to build environments that through their design impact crime reduction. Another example is from the traditional design values, one of the values, the *vernacular design value* is guided by the belief that simple life and its design are superior to that of modernity (Holm 2006). Many of these are not directly translatable for game design, but I have used Holm's framework to further theorise on game design values.

2.2 MULTITUDE OF GAME DESIGN VALUES

After reflecting on casual game discussion and value propositions underlining the differences of casual games over hardcore, or more traditional digital games, I found it difficult to directly derive further sets of values from a particular data set. As discussed hereinabove, design values are usually concealed, implicit and rarely explicated in the work of the designer. Values are recognised and become explicit when there is a certain conflict in design, and that is what was happening in the casual turn (Kultima 2009). The casual turn represented a value conflict that extended beyond a single game production and became an industry discussion making sense of the changes within the landscape. However, further in the years I have been gathering voiced discomforts, disagreements and reflections within the sub-groups highlighting and reflecting their positions on the industry. In these discussions, the developers have concretised their motivations and rationalisations revealing different valuations of them and others.

Developers' rationalisations of their design processes as well as design choices are often based on value propositions that are implicit, ill-defined or even contradictory to each other. The diversity of these values can be seen in contemporary game development and in the mixture of products created. In 2016, we delineated nine sets of game design values: *value of player centrism; casual game design values; traditional game design values; value of artistic expression, innovation and experimentation; societal impact and cultural values; values of production and creation process; values of independency* **and** *values of commercial.* These values form a gestalt that represents the pluralistic nature of game design (Kultima & Sandovar 2016).

VALUE OF PLAYER CENTRISM

The value set of player centrism centres on the values visible in the accessibility turn pointed out by Wilson & Sicart (2010). This set also includes the value of co-creation and user inclusion as well as the value of usability and playability emphasising player centric design as a defining ground for game design. It is important for the developer to be the players' advocate – to listen to the users, know their wishes, empower player's creative processes and solve the design problems resulting to a pleasurable game experience. During the period of my research, user inclusion has been discussed a lot as well as how to engage players to create their own content (before the release or within the existing game) or somehow participate in the creation process. Such games as *Little Big Planet*, *Minecraft* or *The Sims* have been celebrated as games empowering players to create their own content instead of developers providing a linear designer-set experience. Designing a game to utilise creations of the players (user created content) has been one of the ways to make players more engaged. There are fewer examples of successfully involving players in content creation before the release of a game, but in modern online games, the player metrics are constantly used to make further design decisions best fitting to the players' behaviour. Even though almost any game developer needs to concentrate on the usability issues, some developers might value these in their processes over the other factors. A good game is well polished and provides a clean flow of the experience – for the player.

CASUAL GAME DESIGN VALUES

The second set of values is the set where I began: casual game design values. The values of accessibility, acceptability, flexibility and simplicity differentiated the design of casual games from the more hardcore games. In general, such design values can be a basis for creating games for mass markets, secondary use and heterogeneous user groups. Concentrating on familiar and safe experiences suitable for all ages makes games fitting for larger groups, and socially acceptable. Enhancing the accessibility of the game makes playing possible for people with varying limitations. The accessibility of a game is not limited to the cognitive aspects of a game product, but also includes the access of purchasing – such as making the game available on wide variety of online services. Simplifying the design enables lighter play experiences. Minimal elements and user interfaces make it easier to get into the game as fast as possible but also maintain the lower cognitive exertion. Flexibility in game design enables changing situations. As playing a game can be the player's secondary activity, game design needs to adapt to the context of the player – such as playable on a mobile device or turn-based allowing the player to jump in and out of the play sessions. Play may happen in parallel with other activities, such as travelling, eating, housework and incoming phone calls. To support different players, their play expectations, certain limitations and priorities, these design principles guide the designers towards particular design. A good game for someone who values this starting point is something that a wide variety of people can play and enjoy, such as *Microsoft Solitaire, Candy Crush Saga* **or** *Angry Birds.*

TRADITIONAL GAME DESIGN VALUES

The third set, traditional game design values emphasises immersion, challenge and competition, community and exploration of other-worldliness as valuable starting points for game design. Even though video games have a relatively short history, there is a certain breed of games that are valued by the more devoted game hobbyists. A designer aligned with this value may place the creation of engaging and immersive experiences at the centre of their design process. The game experience can be rewarding through immersive experiences such as *Myst* or *Heavy Rain*. The main enjoyment might come out from the challenging gameplay, such as in *Dark Souls*. The games can be celebrated as competitive sport; such as *League of Legends* **or** *Counter Strike*. A successful product connects people to devoted communities, such as *World of Warcraft* **or** *Eve Online*. Another theme of traditional videogames is to explore science fiction and fantasy worlds, which can in themselves be perceived valuable by the creators themselves: game series like *Mass Effect* or *Bioshock* can be the design examples that developers admire and want to mimic.

VALUE OF ARTISTIC EXPRESSION. INNOVATION AND EXPERIMENTATION

The fourth set, the value of artistic expression, innovation and experimentation reflect design values that target games as a multidimensional medium for artistic exploration. This category could be divided into more detailed values, but at least the values of visual design and aesthetics, experimentation or divergent design define the set. The value of visual design and aesthetics can be an important valuation for a designer that pursues aesthetically or visual game experiences, such as *The Unfinished Swan* **or** *Monument Valley*.

Many designers might also value experimentation for the sake of exploration and trying something new. The actual end result might not be as important as the lessons learned from the experience. For instance, games that are celebrated by the developers at the annual Experimental Gameplay Sessions at GDC are interesting to a wide audience of game developers due to their fresh approaches to games. The value of divergent design is based on the belief that it is important to try to explore areas of game design which are not well represented or are underrepresented in the mainstream games or in the artefacts. For instance, topics of love, romance and sexuality are explored at Lyst game jam. The overall ethos of the values of artistic expression, innovation and experimentation is that it is more important to explore and advance the medium of games than to create commercially successful products or products that would please everybody.

SOCIETAL IMPACT AND CULTURAL VALUES

The fifth set, societal impact and cultural values includes societal and moral values, beliefs that guide game designers to work on games that have an impact on the surrounding society. This set of values include: games for good and impactful games, diversity and accessibility, ethics and morality and cultural diversity and tradition. Within this set of design values, the creator bases the design choices on a certain social agenda. For instance, it might be preferable to some developers to create artefacts that have a positive impact to society or to develop games that spread awareness about a certain cause – games for good and impactful games. The power of game communities can be harnessed, for instance, for solving scientific problems, such as Fold it of biochemistry. A game can spread awareness of breast cancer, such as games made at the Boob Jam. For some game developers, it is also important to create games that cater to smaller user groups, such as minorities or players with certain disabilities or barriers for play. The values of diversity and accessibility have been popular topics in game development for the latter part of my studies. Players with various disabilities or of gender, race and sexuality minorities might feel left out from the game cultures and some developers feel strongly about working to improve their experiences through the diversity and accessibility issues of games. A game designer may also value not exploiting or harming the players by not creating games that encourage problematic gambling or support exploitative business models. The game development and design choices are guided by general ethics and morality. The last value, the value of cultural diversity and tradition, is based on the belief that it is valuable to explore culturally diverse topics or draw inspiration from cultural traditions which are not well represented in the contemporary game products. An example for a game developer can be, for instance, *Never Alone*.

VALUES OF PRODUCTION AND THE CREATION PROCESS

The sixth set, values of production and the creation process include such values as peer respect and professional identity, collaboration and value of teamwork, open source ideology, polish and details, technological advancement and the value of development as a challenge. Some of these values refer more to the development culture than the artefact itself (cf. Pulkkinen 2014). Some game creators might base their design choices on peer respect and on building their professional identity as game developers. In this sense, they

might draw from the perceived mutual value sets for their art and please other creators instead of the target audiences. The main value driving their work is peer respect and professional identity. The design work might be guided by collaboration and the value of teamwork: the pieces of design come from the team and not from a single person. Some game creators might also choose to prefer open source ideology over commercial game making, such as creating games for the Global Game Jam. Game developers might also emphasise how the primarily focus in their design work is on the polishing of the visual elements or the gameplay through meticulous detailed work, such as the feel of a jump or a certain game mechanic: they emphasise polish and details.

A typical valuation directing the design decisions of game developers is based on technology. Many developers are technology enthusiasts and pursue certain game technology in their creations simply as an interesting advancement in the industry. For a developer, the main guiding principle can be technological advancement. Some games might also be advertised and valued because of the manner in which they were created – related to the value of development as challenge. This may include a time constraint or that of a very small file size, as valued in game jams or various game development competitions.

LUDOLOGICAL VALUES

The seventh set, ludological values is based on the notion that games are a special form of art and a valuable starting point for game design. Values such as enjoyment and value of fun or value of game mechanics capture the appreciation of the "core" of game experiences for many designers. It is valuable to try to create a game which is fun to play, instead of pleasing to watch. The emphasis of the creation of interesting game mechanics instead of using existing ones can also be valuable for many game developers. The set of ludological values also includes the value of technological agnosticism as well as nostalgia and retro aesthetics. Some game creators might note that they are not valuing game development as software development, but instead concentrate on creating interesting playful experiences. Such an endeavour might be fulfilled also with low-tech approaches, platform flexible designs, or mixed media approaches. For others, the main design inspiration can be drawn from the childhood memories of games and popular media on a quest for celebrating nostalgic experiences and recycling familiar constructs.

VALUES OF INDEPENDENCY

The eighth set, values of independency includes such values as autonomy and artistic freedom and anarchy. These are more visible in the sub-communities of indie game developers, but also shared among the contemporary game industry actors. For many creators, cultivating autonomy and freedom in their work is the single most important value. This value is based on the belief that it is important to create artefacts that depict honest and true design decisions that are not dictated by outside commercial requirements or those that align with mass appeal. It might also be important for some designers to base their creation in opposition to persistent design conventions to purposefully pursue subversive design.

VALUES OF COMMERCIAL

The ninth set, values of commercial, highlights game creation as a business and can be divided into at least two different values: the values of economic success and opportunism and disruption. Whereas for some developers, economical sustainability is an important goal, it might not be the single most important factor in their design decisions. However, some game developers might value economic success over critical acclaim or other values. They, therefore, search for design decisions that are revenue driven. Financial success can be achieved not only through traditional and conventional designs but also through the design or opportunistic or disruptive innovations. The value of opportunism and disruption is based on the belief that it is valuable for a designer to seek and utilise new opportunities in the field of game design (such as new technology or user groups) or even search for areas that could be overtaken with new inventions. All of these values are listed in Table 3.

Within the field of game studies, there has been an emphasis on developing frameworks that ensure that moral and ethical values become integrated in the design and development of information and communication technologies (e.g. Cockton 2006; Friedman et al. 2002; Flanagan et al. 2005; Flanagan & Nissenbaum 2014; Flanagan et al. 2007; Manders-Huits & Zimmer 2009; Sandovar et al. 2016). However, it is important to make a distinction between societal values and those values which guide the design process. Where the latter can include the former, the former only refers to a portion of design values. From a philosophical perspective, the word value is normally equated to societal values of morality and ethics. However, in design, the systems of values and beliefs are not morality constructs be it an overall societal value targeting the “good life” or an aesthetic value of decorativeness or simplicity. Game design values affect the decisions made within the design process in their entire multitude. Game design values refer to the value propositions which guide the design decisions of game designers and developers. Game design values also do not include the communication or mediation of games themselves with these value propositions through the design of an artefact for the consumer, but instead they point to the influence that practitioners’ belief systems have on the design process.

2.3 VALUE PLURALISM

In philosophy, value pluralism usually refers to moral values or political pluralism. Whilst in political pluralism, the discussion is concentrating on what sort of restrictions governments can put on people’s freedom to act according to their personal values, in moral pluralism the debate is on a more general level (Mason 2015). The discussion of moral pluralism is not about different value systems or viewpoints, but instead refers to different moral values. The question about pluralism in moral theory is whether these seemingly divergent values can be reduced to a single super value, or whether several distinct values exist – thus values being essentially pluralistic (Mason 2015). Even though connected to moral philosophy and politics, value pluralism in design is not only about these “big” values we base our human lives on or decide upon regarding direction and order in society. Design values can operate on a very small level and refer to, for instance, aesthetic priorities or a preferred form or ways of working.

TABLE 3. MULTITUDE OF DESIGN VALUES IN THE FIELD OF GAME DESIGN.

CATEGORY	DESIGN VALUES
VALUE OF PLAYER CENTRISM	PLAYERS' ADVOCACY
	CO-CREATIVITY AND USER INCLUSION
	USABILITY AND PLAYABILITY
CASUAL GAME DESIGN VALUES	ACCESSIBILITY (EASE OF PLAY AND EASY TO ACQUIRE)
	ACCEPTABILITY
	FLEXIBILITY
	SIMPLICITY
TRADITIONAL GAME DESIGN VALUES	IMMERSION
	CHALLENGE AND COMPETITION
	COMMUNITY
	OTHER-WORLDLINESS
VALUE OF ARTISTIC EXPRESSION. INNOVATION AND EXPERIMENTATION	VISUAL DESIGN AND AESTHETICS
	EXPERIMENTATION
	DIVERGENT DESIGN
LUDOLOGICAL VALUES	ENJOYMENT AND VALUE OF FUN
	TECHNOLOGICAL AGNOSTICISM
	NOSTALGIA AND RETRO AESTHETICS
	VALUE OF GAME MECHANICS
SOCIETAL IMPACT AND CULTURAL VALUES	GAMES FOR GOOD AND IMPACTFUL GAMES
	DIVERSITY AND ACCESSIBILITY
	ETHICS AND MORALITY
	CULTURAL DIVERSITY AND TRADITION
VALUES OF PRODUCTION AND CREATION PROCESS	PEER RESPECT AND PROFESSIONAL IDENTITY
	COLLABORATION AND VALUE OF TEAMWORK
	OPEN SOURCE IDEOLOGY
	POLISH AND DETAILS
	TECHNOLOGICAL ADVANCEMENT
	DEVELOPMENT AS A CHALLENGE
VALUES OF INDEPENDENCY	AUTONOMY AND ARTISTIC FREEDOM
	ANARCHY
VALUES OF COMMERCIAL	ECONOMIC SUCCESS
	OPPORTUNISM AND DISRUPTION

As illustrated by Holm (2006), design values come in different flavours. Schön (1984) expresses that "nothing is so vivid as the different and conflicting systems of appreciation built into the pluralistic world of contemporary architecture." Similarly, Holm (2006) discusses the "pluralism tendency within design profession". Lawson (2005) also shares this view when he affirms that the designers' guiding principles can vary a lot from one designer to another. It is not always perhaps so trivial to be able to perceive the pluralism. For instance, Holm (2006) discusses how the epochs of design historians have made it difficult to see the nature of versatility and pluralism in aesthetics of architecture and industrial design. If we look at design from a general perspective, design seems to be ontologically plural. In this sense, there is no single value in design which would be more fundamental than another. We cannot reduce design into one value only. Design values appear to adhere to value pluralism.

However, it is notable that such plurality might not be relevant to a practising designer. As design is prescriptive rather than descriptive, a single designer is working through a selected value set, explicitly or implicitly. Any piece of design contains, at least some sort of an assumption of future – a preferable view on the direction where the design should impact (Lawson 2005). Designers are guided in their work by both their own vision of the future and their level of confidence in this vision. For Lawson (2005), guiding principles can be formed over a number of years of practicing design. On the one hand, the guiding principles set the context for each design process. On the other hand, in every design process the designer learns more about the given principles and eventually will lead to refined approaches. A designer's trademark and a way of differentiation can be based on these distinct sets of values and guiding principles.

Our framework of nine value sets in game design is based on observations, discussions and other studies within my ten-year research period, leaning on the theorising of others. The framework highlights the plurality of games and the valuations behind them, but it is not exhaustive or some values might be more or less represented in the practice. Furthermore, the practitioners hold more detailed guiding principles and value sets. Some values might be attached to certain genres (see Pulkkinen 2014), while others are based on historical fluctuations and connected to the wider changes in the industry. Not all can also act in a creative team according to their own valuations. A set of values and guiding principles might come from the design lead, creative director, client or a publisher. If there is a clash of values between the design brief and the designer's own appreciative systems, the goals of the project might be hard to internalise.

The field of game design has reached a level of maturity where a multitude of design space is more concretised in design examples and conventions. Such variety invites schools of thought, design movements and, furthermore, differences in thinking. In the fast paced industry, where everyone is looking for the next new thing, the differences in design thinking might go unnoticed (Kultima 2015a). Wilson & Sicart (2010) highlighted an *accessibility turn* in game design reflecting user-centred design over the designer-centric design. Such sentiment is especially visible in the selection of design books from the early

2000s (Wilson & Sicart 2010). We should be aware that game design books are not neutral – in a similar way as conference presentations and lessons learned from the practitioners are not general. From the perspective of game design praxiology, we should understand the *value pluralism* in games as created. Books are always written about a certain period of time reflecting the ethos of the era by particular people with particular experiences in the field.

In summary, games can be many and are many. They are valued for different reasons and compared with each other from different perspectives. Each game is also made by people who value some things over another and their valuations will affect the design decisions made. There is no single value, such as usability and playability or experimentation that would cover the whole sphere and value of play. We cannot reduce game design values to a single value, even though making a single game can be dominated by one. Even though one designer can follow particular values or one production can be affected by certain value, game design in general is value pluralistic.

THIS CHAPTER IS PARTIALLY BASED ON THE FOLLOWING ARTICLES:
KULTIMA. A. 2009. CASUAL GAME DESIGN VALUES.
KULTIMA. A. & SANDOVAR. A. 2016. GAME DESIGN VALUES.

CHAPTER 3: GAME DESIGN PROCESS IS OPPORTUNISTIC

There are a few game design books explaining the overall process of creating games (e.g. Fullerton 2008; Adams 2010; Schell 2008). Many of these books explain the basics of the game industry, developmental roles, structure of the development process and the elements that games are made of. As already discussed earlier, these books are drawn from particular experiences and carry the ideologies of their authors. However, for outsiders, they provide a good starting point for basic vocabulary and give an overview of the domain of game development.

One of the main topics in Fullerton's *Game Design Workshop* is the *iterative* nature of game development (Fullerton et al. 2004; Fullerton 2008; Fullerton 2014). Fullerton (2008) frames her *play-centric* model of game development as a cyclic, iterative process. For her, in the development of a game, phases of idea generation, conceptualisation, testing and evaluation are repeated. Furthermore, she positions that iteration is necessary for the designer's work in order to act as an advocate for the player (Fullerton 2008). In *Rules of Play*, Salen and Zimmerman (2003) are also emphasising the role of testing and iterations: the game designer needs to test the game several times in order to create meaningful experiences for the players. Their main perspective of the book is games as systems. Designing a game is to design a system where everything is connected. If the design is somehow altered, despite the seemingly small size of the change, it might have a major impact on the other parts of the design (Salen & Zimmerman 2003). Adams (2010) talks about *iterative refinement* in his Fundamentals of Game Design. In his words, iteration is about elaborating the design by implementing and testing the game components and

features, and then going back and refining them. Game design iterations can also be seen in a simplified way as “additions and improvement” (Despain 2012). Altogether, ‘iteration’ is a widely accepted core concept in game productions.

Keith (2010) has been writing about agile methods in game development. He dates the beginning of iterative design into the early days of game development and the days of the boom of the arcade game industry. As manufacturing arcade machines was more expensive than software creation, the software was tested, tweaked and sometimes discarded (Keith 2010). He ties the modern game development vocabulary’s ‘iteration’ closely together with Scrum, an agile management method, but also claims that, for the game developers, iteration is more than a ‘sprint’. According to Keith (2010), it is the “practice of creating an initial version of something (artwork, code, or a design), examining it, and then revising it until it’s sufficiently improved.” For Keith, Scrum is an important tool for game developers in managing and planning the schedules of a game’s development and further essential for improving the quality of the product by offering more iterations as well as improving the work conditions of the developer by reducing stress (Keith 2010).

The concept of iteration has been examined in my studies as well (Kultima 2015c; Kultima et al. 2012). I have been interested in the development process and the role of the ideas in it, but also how game designers conceptualise and experience the iterative process. Although iteration has its specific meaning in computer science, it has taken a larger sense in the mouths of the developers – like Keith (2010) suggests. Iteration refers to various changes that are done for the software, but it also captures the mentality of game development on the micro and macro levels of the industry culture. Developers deal with change on multiple levels: they work with their products making small adjustments constantly as they proceed with their work. The changes and ideas are evaluated through playtesting and reworked based on reflection. The next projects utilise the lessons learned from the previous productions, but constant readjustments and reflections are needed in order to maintain and grow the expertise. Throughout the time and even during the productions, the landscape of games might change and the developers need to adapt to these fluctuations. Game development requires flexibility in thinking and the attitudes of the creators.

This flexibility and the way of working are weaved into the very fabric of being a game developer. However, it is important that the developer will not only react to the changes, but is also ready to take the opportunities that might come about. This calls for a specific style of leadership and management: following the changes around, keeping one’s creative process alive and reserving enough time for the process. Starting game developers discover quite quickly how the ideas that they conceive might not work the way they were intended and that sometimes the development process in itself is the greatest way to come up with new ideas. Games are developed iteratively. While the product itself needs to be developed with a flexible approach, the whole outlook towards game development is also framed by this attitude. Iterative, agile processes are inherently opportunistic: there is a plan that one follows, but there is a premise that this plan might be altered or deviated from

based on the findings within the process. The Game design process is opportunistic in the sense that the iterative processes are affording changes to be made to guarantee quality, usability, but also value to grow from the product.

3.1 ITERATION IN SOFTWARE DEVELOPMENT

In game development, the light-weight methods emphasising iteration are usually discussed in the context of software development methods such as Scrum, Lean or Kanban (Keith 2010). Larman and Basili (2003) concluded in their meta-study of iterative methods that the models have a common theme of "avoiding a single-pass sequential, document-driven, gated-step approach." This opposed view, the Waterfall model, is often connected to Winston Royce's article in 1970 on managing large software developments (see Royce 1970). The Waterfall model depicts software development consisting of the requirements, design, implementation, verification and maintenance phases. In the model, development proceeds in sequence from the requirements phase all the way to the maintenance phase, like a waterfall.

In the 1980s, Boehm (1986; 1988) suggested a spiral model instead of the waterfall model. For Boehm, the major distinguishable feature of the spiral model was that it creates a risk-driven approach to the software process, rather than a strictly specification-driven or prototype-driven process (Boehm 1986; Boehm 1988). However, the history of these approaches can be dated to even further back in history. Larman and Basili (2003) discuss how the iterative and incremental development practice has been part of software development for an extended period of time, taking its roots all the way back to the 1930s' engineering practices.

Adams and Atman (2000) concluded in their study of iterative behaviour in engineering students' design processes that more skilful students conduct more iterations. Jin and Chusilp (2005) focused on *mental iterations* from the perspective of the design contents or ideas that are flowing during the iteration process of engineering design. They were interested in what ideas or contents are generated, what roles they play in designers' cognitive activities and how they are further worked on. With a protocol analysis approach, they examined how designers of the same skill level act differently in different design situations (Jin & Chusilp 2005).

Larman and Basili (2003) discuss the multitude of IID (iterative and incremental development) models. Modern usage of the term (IID) is not about just revisiting work (rework), but also evolutionary advancement. They note that "even though the value of IID is well known among literate, experienced software engineers, some commercial organizations, consulting companies, and standards bodies still promote a document driven single-pass sequential life cycle as the ideal." (Larman & Basili 2003). For Larman and Basili, the Waterfall model provides an illusion of an orderly, accountable and measurable process making the model more attractive than IID practices which promote avoiding more inflexible approaches to software development (Larman & Basili 2003). Iterative models are

also considered to be more efficient and to bring quality to the development processes. For instance, Jacob Nielsen (1993) concluded in his study of iteration in UI development, that the iterative process in user interface design improved usability. Despite the wide interpretation of his article as the origin of the sequential model, Royce also puts together iteration cycles as part of the successful development methods (Royce 1970).

3.2 ITERATION IN GAME DEVELOPMENT

Many game development books discuss cyclic models for game productions. For instance, Adams (2010) depicts the mid-part of the production process with an arrow rotating backwards. Fullerton (2008) illustrates the production process with a spiral in a funnel. In our data of the depictions of development processes, the cycles and loops were part of almost all the pictures of the interviewed game developers (Kultima et al. 2012). Cyclic models are tied to the nature of games as software. In creating computer programs, the code of the program needs to be reworked and tested multiple times before arriving to a final product. However, the nature of games as experiential products calls for another layer for agility in development. The game needs to be tested by playing and the design needs to be tuned based on the observations of these testing sessions. Furthermore, in game development, iteration seems to be in the core of the innovation processes and part of the development culture at large, not just part of polishing phase or improvements of the software.

Game developers might see iteration in different ways. To understand the shared ground and the differences, we conducted a two-part interview study in 2010 and 2013-2014 with the practitioners (Kultima et al. 2012; Kultima 2015c). We asked game developers to depict their production processes from the perspective of innovation and then later to elaborate and reflect on the views expressed in these sessions. It was easy to conclude that iteration is an essential, natural and important part of the game development – even trivial. However, the views and opinions as well as experiences and attitudes varied among the developers. How should a game be treated within the production? How much space do you need to leave for changes while planning the processes and into which phases? Who decides on the iteration loops? How are the changes decided? Why do game developers iterate?

I believe that there is more room within the field of game development to form particular design methods and to highlight distinctive design philosophies. Some of these directions could be taken from the different perspectives on the agile approaches and are derived from the developers' conceptions of iteration. In our studies, iteration seems to be tied to the many levels of making the game: it is connected to the quality of the product, the experience and management of design work, attitudes of the various developers, and the limitations of the resources. Iteration is not only about gradually adding elements and building complexity to the game design, but it is also about removing unnecessary features and simplifying the design. It is a way of thinking within the developmental cultures of game making and also part of the innovation processes.

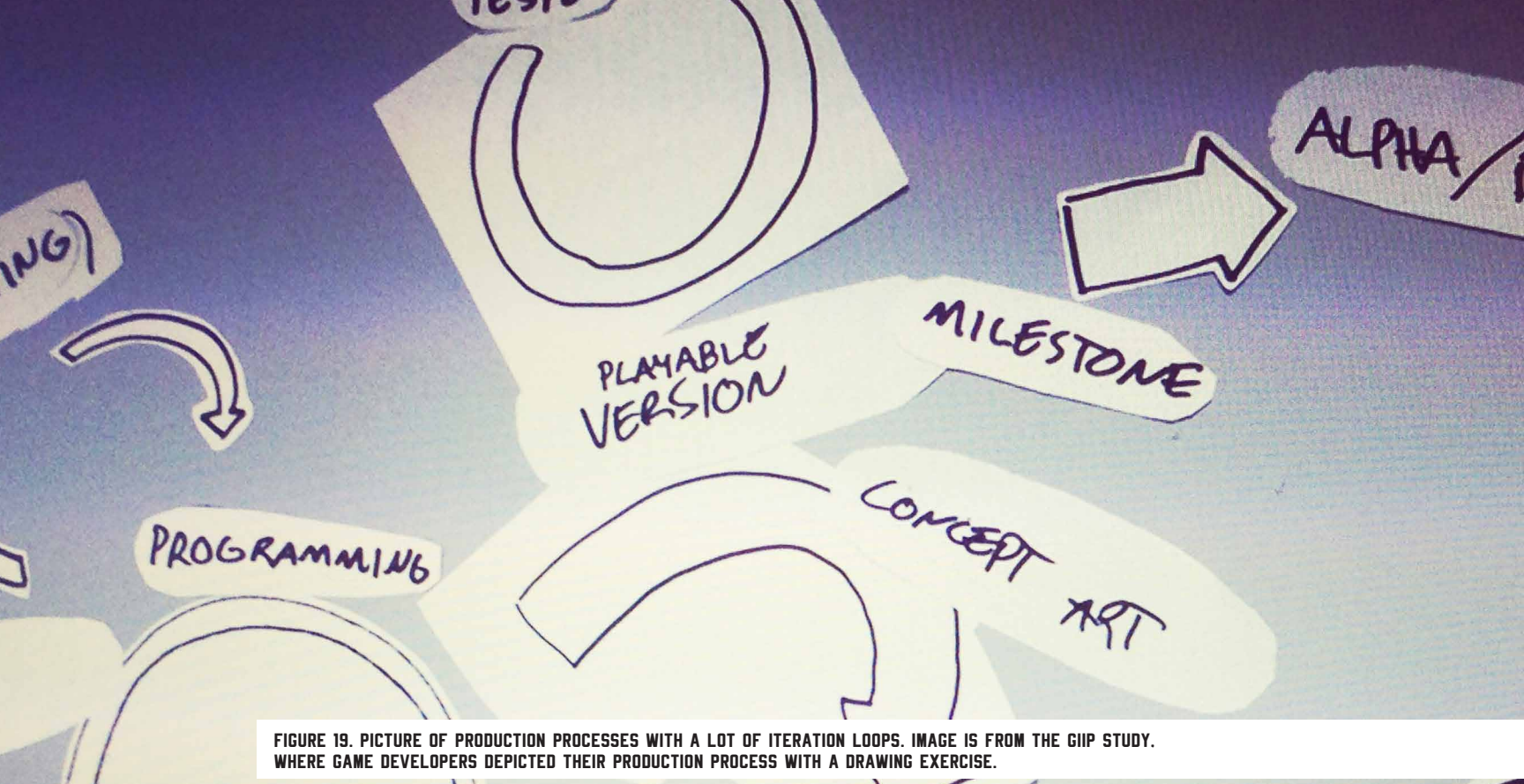


FIGURE 19. PICTURE OF PRODUCTION PROCESSES WITH A LOT OF ITERATION LOOPS. IMAGE IS FROM THE GIIP STUDY. WHERE GAME DEVELOPERS DEPICTED THEIR PRODUCTION PROCESS WITH A DRAWING EXERCISE.

In the GaIn project (2008-2010), we were interested in understanding the practice from the perspective of ideas and innovation. Iteration and agile approaches came up also within these studies (Kultima & Alha 2011a). One of our findings was four different approaches towards innovation processes: *idea centric, human centric, evaluation centric* **and** *iteration centric innovation philosophies*. These views were derived from the depictions of production processes drawn by our interviewees. The iteration centric innovation philosophy reflects the belief that iteration and flexibility are central for the innovation. What matters is the flexibility in making games: while one cannot always know beforehand how the idea works in practice, it is important to keep iterating and testing different solutions allowing the product to change its direction. Ideas are only starting points from where the production moulds into the best possible end result. Iterative development is key in making ideas live and finding creative solutions. Overall, the dynamics of these philosophies are explored more in the next chapter, focusing on the role of ideas, creativity and innovation.

Throughout my ten-year research period, I have conducted several studies utilising thematic interviews with developers. The problem with the interview approach is that the practitioners often lack reflection on their work and the level of discussion might become too abstract. For the study of the development processes, we utilised an approach where the developers concretised their thoughts as pictures (Figure 19) similar to mind-maps (Kultima et al. 2012). The framework for the innovation philosophies was derived from the words in these pictures, which under-emphasised the role of iteration within the findings. In the pictures, iteration was often illustrated as arrows, loops, spirals and twirls. The interviewees also explained the iterative process by physical gestures: pointing at their constructs during the exercise and describing different loops connecting the various areas of work. From this perspective, the iteration seems to be even more dominant within the development process than the other perspectives highlighted by the study from 2010 (cf. Kultima et al. 2012).

Furthermore, iteration has been present throughout my studies within the informal discussions among the developers, in their conference presentations and speeches as well as in their design books and other writings published during and before my study period. The topic was intertwined with various themes of the game work and I wanted to look deeper into the issue from the perspective of the experiences of the designers. In the second set of interviews on iteration (Kultima 2015c), I discussed with four practising game designers from different countries. I wanted to go deeper into their conceptions and experiences with the everyday practice of working iteratively. I was particularly interested in how claims derived from the 2010 (Kultima et al. 2012) interviews were reflected in more detail. Mashed together, these two studies offered a deeper view into the different ways of conceptualising iteration and how game developers experience it.

VIEWS ON ITERATION IN GAME DEVELOPMENT

In the second part of my iteration study, I again wanted to make sure that the interview setting was enhanced with visual material. I analysed the interview transcriptions of the first data set and concluded claims that were printed on paper as speaking bubbles.

The interview setting was constructed so that the interviewee could choose the order of themes by selecting a batch of claims from disclosed envelopes. The discussions reflected on the views presented by the previous interviewees, mostly agreeing and elaborating on the presented claims. The developers experience iteration as a natural part of game development. Solutions in game creation need refinement and constant rework in order to reach the design goals and to release a quality product. The nature of the game development is a constant exercise of finding new solutions and fixing the design towards the preferred direction.

For some, the iterative process comes naturally and they can even find enjoyment in it. Even though iterations can also create frustrations, it is deemed as an important part of the process: suitable solutions are not easy to find and might take time to develop. Within the development process, it is typical that a big part of the initial idea is abandoned. Some developers might express how they have been experimenting with different approaches and eventually found the iterative model to be the most efficient. They feel that the iterative approach helps them to be prepared for things to change and ready to seize the opportunity if such opens up. Iteration is an organic, sometimes unpredictable part of game development. You don't always get it right on the first try, neither on the second, third or the fourth. Sometimes it takes several goes before the design is right.

The unpredictability in the development is a challenge for managing the game work. In my studies (Kultima et al. 2012; Kultima 2015c), the developers expressed how one should always add extra on the schedules as it is difficult to predict how much iteration is needed before the product is ready to be released. As many other opinions on iteration were agreed, it was not always unanimous regarding how schedules with iterative development were to be structured. Some developers preferred to have more space for iteration loops and flexibility in the pre-production schedule and some were keener on keeping the whole production flexible enough to accommodate important refinements and even bigger changes. While smaller iterations to the artefact are done constantly and through quick reflective play sessions, bigger changes might take more time and process to decide. Including outsiders to the process as playtesters can be scary and unconformable for the creators, but they know that it is a necessary part of the process. The creators become blind to their work and they need an outside perspective.

Even though there are no ways around it, adding more iterations can also become costly. Several developers expressed how iteration is expensive and consumes time and resources. Each iteration is weighed in money, when the goal of the production is commercial. As the resources are limited, the process involves compromises, and decisions need to be done whether to continue with an idea or abandon it altogether if it seems to take too much time to make it work. Even though iteration was considered to be a natural part of development and something that goes throughout the whole production cycle, taking another try at something is not always possible. It was also discussed that some parts of the game are more pressingly under iteration, while other parts of the design could be locked earlier. Then again, game development can surprise the creators positively

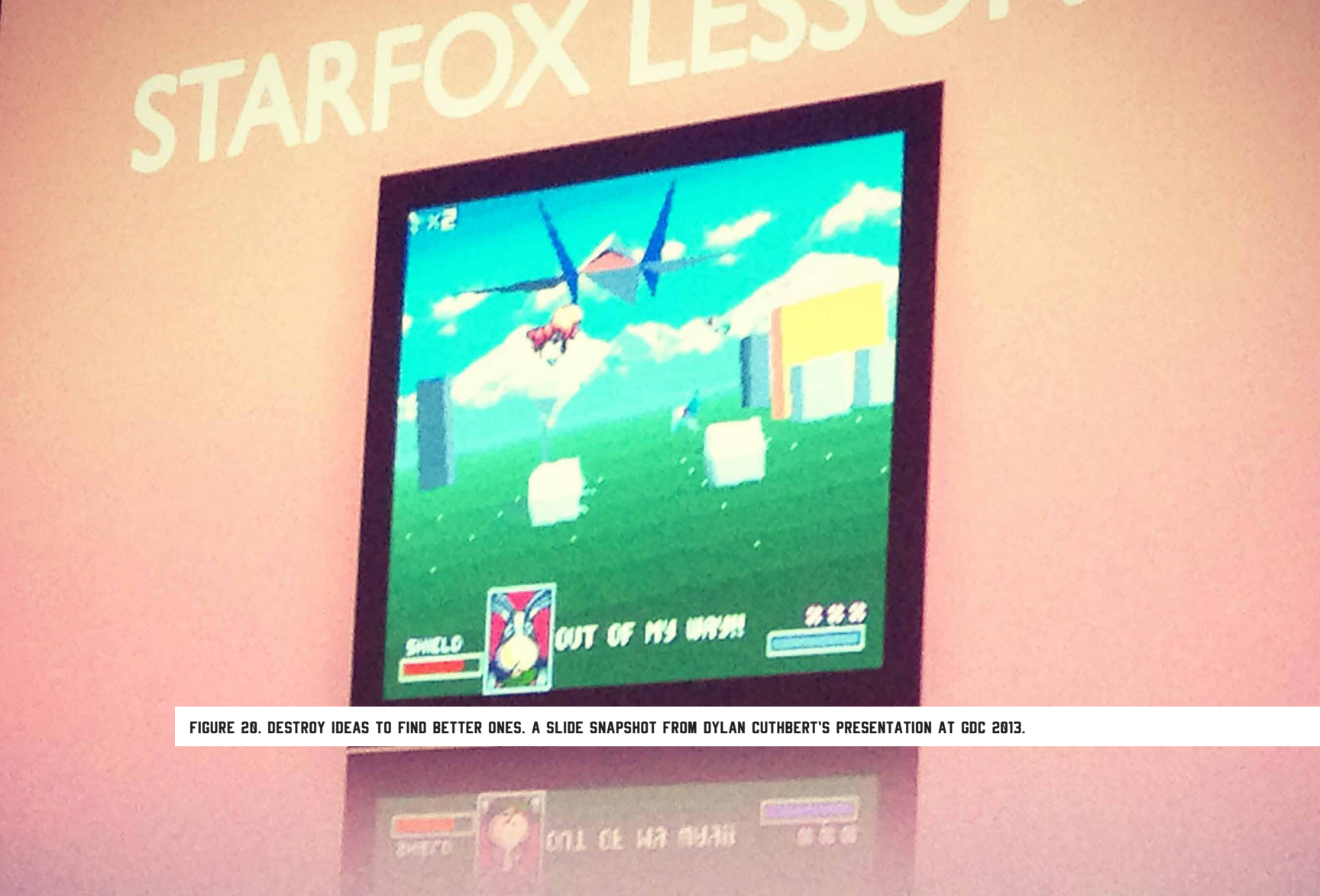


FIGURE 20. DESTROY IDEAS TO FIND BETTER ONES. A SLIDE SNAPSHOT FROM DYLAN CUTHBERT'S PRESENTATION AT GDC 2013.

when something works on the first try. Furthermore, sometimes areas of a game are not reworked when time starts to run out even though it was originally planned to do so. It can be hard for the creators themselves to let go as they always see something to improve in their work.

When one discusses the concept of iteration and iterative development with game makers, it brings about several issues of game development: designing games is unpredictable, costs money, requires planned flexibility and the games need to be playtested. A passionate game developer can experience frustration, discomfort, enjoyment and fulfilment throughout the processes. Iteration is about playing and letting others play your unfinished game and constantly improving it, but also prioritising what to improve and what not to improve. Iteration can also include a lot of compromises – sometimes you need to settle on what is good enough. A developer needs to be well attuned to the agile approach and have an open mind in order to work well within the process.

ITERATION AS ELABORATION. SIMPLIFICATION. OPPORTUNISM AND OMISSION

As already described hereinabove, iteration refers to the progress of a game from a simple wireframe to a full-blown product. Within iterations, additions are made, such as putting more details in the game, adding characters and storylines, working on the features and user interface, bringing in more content depending on the game – and making sure that all the parts work well together. Iteration is about *elaborating* the game into its full version with numerous details and through a process of several design decisions. In this way, iteration is about gradually elaborating the product into an artefact with a full set of features and functionalities.

On the other hand, iteration can require a lot of *simplification* of the design. As the game development process is not straightforward, not only is depth added to the game, but also sometimes the design is condensed and the initial ideas might be discarded. The developers are discussing the process of “cutting fat”, which means that unnecessary ideas, unfitting features, and pieces of the concept that one has no time to implement are left out from the final product. Simplification through iteration is important for all types of games, but especially timely within the era of mobile games, where simplistic ideas have value (cf. Kultima 2009).

Some see each iteration as a creative opportunity. The iterative process can become a playful method of finding new ideas and exploring the potential of the medium. One might purposefully play with the code or randomly alter the design to search for new experiences. Developers can discover interesting gameplay ideas or ideas for characters and storylines while working on something else. Sometimes there is a possibility to change the current design, sometimes these ideas are saved for the next projects. Especially in experimental game productions, leaving room for design opportunities is important. However, such opportunities can also manifest in more incremental innovation processes. Even fewer experimental designs can be unpredictable and the developers need to base their processes on an opportunistic attitude. In this way, iterative development can be seen as *opportunistic* creation.

At the Game Developers Conference 2013, Dylan Cuthbert (2013) was reflecting on his design process by discussing dominant ideas as *creativity occluders*. He explained how it was important for his process that some ideas were removed in order to concentrate on the other areas of the design (Figure 20). This could be called *omissive* iteration. In omissive iteration, the creator purposefully removes a particular feature from the game in order to concentrate on the rest of the design. A dominant idea can take too much attention and the rest of the game might end up uninteresting. Counterintuitively, removing the strongest idea from an unfinished game can help the developer to see the design from a different perspective once the dominant idea of a game is not shadowing the rest of the design.

As already pointed out by Larman and Basil (2003), iterative methods come in many shapes. In game development, iterative development can mean different things to different developers and take game productions to different paths. In the contemporary game industry, iterative development has become something of a synonym to the way of developing playful products. Iteration is tied to the many levels of making a game: it is in connection to the quality of the product, unpredictability of working with new ideas, way of approaching and managing the production, and the compromises that limited resources require. Iteration is not only about elaborating the game into a full-blown product, but it is also about removing features and simplifying the design. Iteration can be considered as an opportunistic method for innovating new games and various different approaches could be constructed, such as using omissive iterations. It is probable that once the industry matures and moves forward, conceptions on different iterative methodologies and philosophies begin to surface.

OSTENSION IN GAME DESIGN

Game development, like any collaborative effort requires a lot of communication. Communication can be a challenge if there are no words for the things that you want to describe. However, a lack of vocabulary does not stop the transferral of meanings from one individual to another. When we asked the practitioners to describe their production processes in 2010, even the developers from the same studio ended up using different words for the same issues or same words for different issues (Kultima et al. 2011). The industry moves forwards at such an accelerated pace that the professional jargon keeps on changing. Despite all this, game developers are usually able to work together towards a shared design goal.

When I started my studies on game developers' creative processes in 2006, the role of design documents was often highlighted in the discussions. A design document is a written form of the design ideas planned for the game production. They can be online or offline documents, in a single or several files and their role is to turn vague ideas into explicit plans (Adams 2010). They are also used as a tool for communicating the design and as reference material for the team when making decisions within the production. The documents are kept updated while the design evolves. Throughout the years, many developers have changed their documentation practices. Many might report that they have stopped using the design documents altogether and some might explain how documentation has

changed its role within the development. While others might think that writing a design document is a good exercise in clarifying the design ideas for yourself, others might point out the written format as altogether an insufficient way of communicating game design. In a smaller team, documentation can be replaced with face to face communication, but in bigger productions different kinds of documents are inevitable. Documentation in an experimental game development process can be especially challenging. In a presentation from Thatgamecompany at the Game Developers Conference Europe 2009, Kellee Santiago explained how their development process utilised weekly prototypes instead of design documents. The prototype worked as a tool in communicating the progress of the design to the all parties of the development, including the publisher.

Creating various types of prototypes is central for game design. A prototype is a smaller or rougher version of a game, or a concretised idea of a single feature. Prototypes often illustrate the basic game mechanics, but it can also be about the visual feel, character movements, interface ideas, narrative structures or any other layers of the game. Prototypes concretise ideas into more interactive or audiovisual forms with an intention to mimic the final game in one way or another. Verbal forms of game ideas cannot fully mediate the intended interactive experiences, or probing from the imagination of the creators, can also be misleading. A prototype provides a way to test the ideas and to reflect upon them. Furthermore, communicating design ideas through prototypes is a vital part of the game development process. Devising a prototype for the design communication, a creator can point out different parts of the design and communicate the future steps and ideas for the other creators. I call this *ostensive communication*.

The word ‘ostention’ comes from the Latin word ‘ostendere’ meaning ‘to show’. Ostension is an act or process of showing, pointing out, or exhibiting. In philosophy, ostension is connected to the theories of meaning. An *ostensive definition* is about defining by example: instead of explaining the meaning of a word with other words, the referent is specified by pointing or showing in some way. For example, instead of explaining how a chair is furniture that you can use for sitting on, one can point out a particular chair and say “That is a chair.” (Yagisawa 1999).

In game development, the ostensive acts are making the communication on ideas possible even though there wouldn’t be rigid terminology. The game design process is filled with discussion on preceding games and other references as well as pointing issues in the prototypes. Ostensive communication is connected to the challenge of time and particularity discussed in chapter 1. The fluctuation of the landscape makes it cognitively less economical to conceptualise patterns of ideas. This is perhaps one of the reasons why some studios might favour prototype-driven development over document driven processes. Ostension is also at the heart of the iterative process: one can move forward to the next step by indicating points of improvement by referencing the prototype.

DESIGN PRECEDENTS AND REFERENCES

Even though design is essentially about change, not everything in a game needs to be invented anew. Quite opposite to that. A large part of a game is recycled ideas already concretised in other games, art or products – a thing that many developers have been happy to emphasise to me. From my discussions with experienced game developers and designers, I have learned that it is the less experienced practitioners that seek to innovate all parts of the game at the same time. They are eager to change the patterns, but might lack the perspective on how much work game innovation holds. The more seasoned creators concentrate on a few new ideas and make them work with the help of recurring patterns and design solutions that they are familiar with.

In general, designers commonly and frequently make use of precedents (Lawson 2004). This also applies to game design (Kuittinen 2011). According to Lawson (2004), a precedent is a vital, central and crucial feature of the design process. They are either whole or partial pieces of design that the designer is aware of. They manifest design ideas in the form of solutions demonstrating the possible ways of doing things in design. They may be previously employed solutions by the same designer, other designers, acquired through less or more systematic ways (Lawson 2004). It might be challenging to enter the discussion of the game developers, if you are not sharing the same knowledge of game history and recent trends. The discussions are filled with examples of games, but also movies, books and other forms of art. As already discussed, staying updated in this industry can be a huge task. However, game developers have their shortcuts. At Nordic Game Conference 2007, I was invited to the speakers' reception with game developers around the world. I remember wondering how well the developers were able to cite all the recent games and admired the amount of information that they were able to share. As one game developer from the US was particularly vivid with his game references, I asked how he was able to find time to play all these games. As a response, he pointed out that he watched videos and read a lot to stay updated – and admittedly played only very few of them thoroughly or at all. Later on, I have also discovered myself that in order to get the hang of a game and the design lessons it can provide, one does not need to always immerse themselves so deeply into the gameplay. Once you know the genre and its predecessors, it is easier to pick the differences.

Precedent is closely related to the term *design patterns*, which is also used in the game design literature (see Björk & Holopainen 2004). However, I have rarely heard any game developers actually using pattern libraries in their work. Some might have even tried to utilise this approach, but cannot seem to be able to find it useful enough in their daily practices. Lawson (2004) notes that the concept of patterns in design dates back to a certain design philosophy of the modernism where the goal was to create design as a history free based on mathematical way of analysing design. Lawson (2004) argues that such views were not informed by the actual psychology of design: design work is more solution oriented than problem oriented and uses the designers' own referencing systems of the precedents.

In the game design process, the communication of the developers is relying on the use of reference games and pointing out features in certain precedents as well as their own prototypes. The language of game design changes through the changes and varies among the individual creators depending on their experiences and background. Relevant references depend on the projects, but are also driven by the personal appreciations of the practitioners. Curiously, in game design, it is especially convenient how existing products can be broken into pieces and freely combined in new ways: in fictional worlds more things are possible than in the design domains grounded by material realities. This poses a wide variety of possibilities in enhancing the creative processes, as discussed in the next chapter. Existing games are one of the inspiration sources of new products, but they can be used in many ways and the ideation processes can be guided with different sources of inspiration and playful methods. Precedents provide tools for communication, but also getting to know previous products and artefacts is useful for probing new ideas. Playing games made by others as well as playing your own prototypes, affords an opportunity for the developer to learn new ideas for their own design.

3.3 DESIGN OPPORTUNISM

Every game developer acknowledges the concept of iteration. The management of game productions and leadership in game development calls for understanding the space that is needed for changes in design and direction. Shifts of the industry work on the background, changes of directions can be done between the productions, and minor adjustments are done on a daily basis. These are all a normal part of the development practices in games. Being part of a game development team calls for a certain flexibility, reactivity and ability to adapt.

Iterative processes and the fluctuations also provide opportunities on the micro and macro levels. The game design process is filled with details and decisions, as already discussed. Such a process involves testing and tweaking while on the go where old ideas can be replaced with new ones found while working with the artefact. The bigger changes within the industry can also provide opportunities to reshape the direction of the development studios. In my network of game developers, some actors talk fondly about the interesting possibilities that the turbulence might offer. Some actors at the game industry are there *for* the change and the exploration of new ideas. A new console or platform is an opportunity for standing out, new user groups are possibilities for new revenues, shake in the value chain is an opportunity to climb in power structures and new technologies are opportunities to explore new playful experiences.

Cross (2001) discusses the ‘opportunistic’ behaviour of designers as one of the process strategies in design in general. He places an opportunistic approach in a comparison of structured processes. Opportunistic behaviour refers to such processes where designers deviate from a structured plan or methodological process into the opportunistic explorations of issues or partial solutions that catch the designer’s attention. Cross notes that even though there have been broad assumptions of structured processes, such as for

instance cyclic analysis-synthesis-evaluation models, there is a little empirical confirmation of their utility or descriptive powers. To him, most design practices appear to proceed in a rather ad hoc and unsystematic way and this is also backed by other studies (Bender & Blessing 2004) proposing that design practices are more accurately characterised by opportunistic strategies than by structured processes. While others might have criticised the extensive emphasising of opportunism in design activity (e.g. Ball and Ormerod 1995), Cross notes how opportunism should not be equated with unprincipled behaviour in design. Opportunism in design should be regarded as characteristic of expert design behaviour. An expert designer deviates from a structured plan if that can provide benefits in lowering cognitive costs in designing instead of sticking with the original plan (Cross 2001).

Along the same lines, opportunism in game design does not mean that production processes are under the mercy of impulsions. However, some game productions are under chaotic management, they might suffer from poor scheduling, unsustainable work conditions, bad leadership and insufficient resources. As in any design practice, game design can also be guided by structured work conditions and this issue has also been an important growth factor for many maturing game studios. Developers report how their processes have benefitted from the better regulation of work hours and planning that stem from the experience of the managers. The flexibility needed in these processes can be embedded in the management styles and the ways that games are developed. This does not take away the nature of design as processes with ill-defined problems and a pursuit of building unknown. Making enjoyable complex systems affording new experiences inherently require iterative processes, which in essence are *opportunistic*. Unexpected findings need to be planned with space and one needs to have a process that can accommodate it. Even the smaller changes in the system might need time to make it work. Some ideas cannot be turned into reality and need to be replaced with new ones. That said, the flexibility needed in such a process has to do with the ability to generate alternative ideas, which is discussed in the next chapter.

THIS CHAPTER IS PARTIALLY BASED ON THE FOLLOWING ARTICLE:
KULTIMA, A. 2015. DEVELOPERS' PERSPECTIVES ON ITERATION IN GAME DEVELOPMENT.

CHAPTER 4: GAME DESIGN PROCESS IS A PLETHORA OF IDEAS

My ten-year study on the game developers' practices began with studies of brainstorming and ideation. That was a good starting point, but in order to understand the creative life of a game creator, I have had to broaden my perspective. It is important to discuss the role of game ideas within a larger frame. Even though ideas are critical for any innovation process, their value is always tied to what can be made real. Putting together a playable product has been and still is a bigger challenge than the creation of new, fresh and innovative ideas. It is not easy to make your vision real and, throughout that process, ideation continues. More precisely said, game ideas surround the design process at all times. A game designer needs new ideas constantly, and in order to maintain their flexibility and an eye for the opportunity, they always have an excess of new thoughts.

Throughout my ethnographic period with game developers, it has been clear that the creators value the final product over the ideas. "It is not the idea; it is the execution" has been a popular slogan for the game developers within these ten years. The related communities, such as game researchers, gamers as well as aspiring developers are more eager to discuss the importance of new ideas than the creators themselves. Talking about ideas without the context of the development realities can be annoying to the developers. The game idea is only valuable if it is executed well and successful games as ideas do not always seem interesting; they need to be played. It has been very important to me to experience game making myself, even just with a limited view, in order to understand this dynamic. If you have not been creating a game from an idea to a playable prototype or a product, you have less potential to understand the everyday practice and the challenges,

compromises as well as social that comes with it. The level of ideas is more visible to us outsiders, but it is just the tip of an iceberg.

I started as an outsider with very little understanding on the process and practice. What I have been able to achieve with this topic, rests not only on the data that I have collected and the discussions that I have had with the practitioners, but also on my personal experience. I have conducted a two-week participating observation period at one game studio, freelanced for another as a designer, participated in several game jams resulting in experimental games as well as created playful artefacts and games as part of our research projects. It has also been imperative for me to gain a deeper understanding of the role of ideas through practice. However, my experiences have only made me realise that the topic of ideas is vast. Nevertheless, game ideas, ideation, creativity and innovation are important topics for game design praxiology and game studies at large. Much of that work is still to be conducted and the more understanding of the game design practice we build, the more we understand games as artefacts, products and form of culture.

My first interview study (Kultima 2010) concentrated on the ideation habits of game developers. Dealing independently with qualitative data for the first time was overwhelming and the analysis was hard. My data was telling me that that the techniques, backgrounds and habits varied a lot and it was hard to see an overarching pattern. Such result was a small let-down, but this ethos has been confirmed over and over again within the discussions with developers and through my other studies. The practices, experiences and use of tools for ideas still vary a lot. As the practices seem to vary altogether, it is rather hard to make general assumptions of the ways of ideation. General theories of creativity and innovation can bring value to the discussion, but at the same time the living nature of the practice of making games is dynamic.

Furthermore, the journey of my research has led me to further paths in questioning the role of ideas within the cycle of game production. Game design guidebooks and the game press push us outsiders to simplify the design process. Even though every production starts from an idea, a vision or a goal, it is not enough to say that game development is divided into linear phases of ideation, pre-production, production and maintenance. Game production processes are versatile and the phases are overlapping each other – ideation happens all the time. The mess that might be behind the whole ordeal can be complicated or perhaps even boring to explain in detail. The real path of an idea is not so straightforward. In reality, the role of an idea and the multitude of ideas within the game design process are much more multifaceted and dynamic. Once an idea or vision for a production is selected, it is destined to be contested through the whole production cycle and within the iterative process of game development. Furthermore, there is always a need for further ideas and the original ideas often do not flesh out the way they were imagined. The plethora of ideas is present in each game production.

4.1 GAME DEVELOPMENT AS CREATIVE PRACTICE

Ideation and innovation are at the core of the game development. Mixing engineering and arts, the field of games is indeed centred on ideas and innovation (Tschang 2007; Tschang & Szczypula 2006). However, the field of games is not formulaic and static. The experiences and attitudes of the developers towards innovation and ideation vary. In one of our interview studies (Kultima & Alha 2010), we were to conclude how innovation is valued and rationalised in many ways, yet not univocally, within the field. Like other areas of game design praxiology, the detailed descriptions of the innovation processes within this industry have not been rigorously examined. Some accounts on the practices of innovation management from one period of time or certain geographically defined cultures have been formed (e.g. Tschang 2003; Hagen 2012; O'Donnell 2014). However, this is simply not enough to understand the volatile industry and the practices within.

One of the pivotal challenges in creating games is their experiential nature. In the early years of my studies, one of the most common sentences of a game developer was "Yes, but is it fun?" The enjoyable experiences that digital games were bringing, at their best, was not seen as easy to design. Games are essentially vessels for experiences, but trivially tied to the subjectivities of human experiences. Games can be many, bringing life to various experiences: They are played by different people, in different situations and for equally many reasons. The subjective and experiential nature of games makes them challenging to design. It is different to imagine a game, to ideate, than to actually engage with the artefact. As one of the most important emphases in my studies, I have concluded that game ideas are bound to be changed throughout the production (Kultima 2010). Such an account can be one of the reasons why developers express that "ideas are cheap" and emphasise the execution. This challenge, then again, is not unique to games, but a shared challenge of experiential products. Brainstorming new game ideas or experiential products in general cannot be completely detached from prototyping.

Creativity and self-expression is important to individual actors in the game industry (Kultima & Alha 2010), but innovation and new openings are important for the sustainability of a firm as well. Innovation is important to the game industry which poses a unique business between creative and engineering industries and has been characterised by growth, volatility and opportunities (William 2002; Peltoniemi 2009). The history of digital games is filled with design innovations and groundbreaking inventions for gameplay (see Adams 2007). This does not mean that meaningful game innovation would need to be radical and change the industry for good. Naturally, as the game industry has matured, the space for completely new ideas has narrowed and incremental innovations have become more central. However, the competition at the game industry has become more and more intense as the changes in the industry have provided ways and channels for even more actors to enter the markets. Game industry professionals constantly seek ways and means to enhance and develop their production processes to get a competitive edge. One way for a game company to ensure creative output in the form of successful products is to gather versatile and talented teams of people and

create an atmosphere that will foster creativity. However, there are, of course, multiple strategies that practitioners utilise.

The sustainability of a game developers' career is tied to the markets and business development. Tschang (2007) discusses that game companies use a certain kind of "balancing acts" in order to survive in the competitive field where the creation of games in itself is complex, but also the consumers are constantly looking for innovative products. There is a need to have more secure products with less experimentation to keep the money flowing as well as to make more experimentation in order to stand out and keep consumers interested, according to Tschang. However, such a view is limited to its time and to a certain area of game ecosystem. Indie developers have been boosted by the digital distribution era and the hobby scene has also started to bloom. The actors in the industry are much wider spread and the experimentation can also be found, if not more probably, outside of big companies. In addition, masses might not be so innovation hungry and the logics of game development vary from one company to another as well as production to another.

4.2 GAME IDEAS

'A game idea' can mean different things to different practitioners; this is an important thing for a game researcher to be aware of. For instance, a developer can think of game ideas as one-liners such as "Tetris meets Super Mario Bros" as another developer might be referring to more elaborate concepts captured in the form of a design document (Kultima 2010). Developers can also pinpoint that the initial form of a game idea can be almost anything: it can be an idea of a character or a storyline, mechanics or any other part of the game. Some might find it more valuable if a game idea is about game mechanics rather than just the theme of the game. All these are tied to certain era in game development. While the popularity of design documents has declined (Hagen 2012), the ludological emphasis on game mechanic ideas is just one view (see chapter 2).

From my interview study conducted 2005 and 2007 (Kultima 2010), I concluded that game ideas should be treated as starting points for the creative process, not as a list of requirements familiar from software development. In a radical interpretation of this, game ideas provide a direction for game production rather than a fundament for the game. The notion comes from the realities of game productions where ideas are susceptible to change as they are prone to be altered in one way or another during the iterative process. Because of the nature of games as complicated experiential products, change is inevitable. Some practitioners might emphasise that the only thing that matters is the quality of the artefact, everything else is compromisable as long as the game is fun. Such a view can be possible when the production has a lot of freedom in design constraints.

No matter how much design is framed with design constraints, it can be difficult to know whether an idea works before prototyping. Ideas might also change because of marketing, target groups or technological issues. However, too many changes can bring a production to its failure: drastic changes can become too expensive as the production takes more

resources than anticipated or never really finishes. Sometimes a game idea survives the whole production process without a touch – the change is also unpredictable in that way. The era of online games has made it possible to gather live data of the use of the game, and react to it even after the game has gone public. In the early years of Facebook games, some even touted this as a great way to test game ideas. To strategise the launch on the largest market areas, developers of 2010s conduct "soft launches" and test the idea with smaller online audiences. However, the core idea of the game, such as mechanics or theme, is not so easy to change at that point. A soft launch is more prone to test whether the game as a service will be taken to a larger live production and if more resources are put into polishing its monetisation design and other aspects of the experience. Then again, with successful games, more ideas are also needed after the launch as new content is added during the live operations.

Fortunately, game developers do not run out of new ideas. It is relatively easy for anyone working in the game industry to come up with ideas for games as they are surrounded by a large selection of design examples and in the virtual of games, almost anything is possible. However, the evaluation of the ideas and coming up with ideas for successful games is a challenge for everyone. It is difficult for the developers to say how they pick the best from the pool of ideas. Experience in game production helps as one develops an eye for the good ideas over the years – and probably also insight to their design principles, as discussed previously. However, even the most experienced game developers might struggle with the changing field: when a new trend arrives, experience might become void. Many game developers who have had success might contribute at least one part of their achievement to luck. Others might state that there are no bad ideas, as the execution is the key in the quality of a game.

The quality of a game idea can be evaluated on different levels. Some might approach ideas with specific criteria, but mostly the developers refer to their "gut feeling". As game development is largely teamwork, we can also think that good ideas are the ones that inspire the team and invite collaboration. In this way, a good idea gives sufficient information for others to imagine the game, yet enough space for them to develop it further and feel that they have been able to contribute to the design. One of the most important factors for the creation of game ideas is the kinds of reactions those ideas produce in the designers themselves, their colleagues and in the people who actually select the ideas. In practice, game developers "bounce" ideas off of others to probe these reactions. A "good" idea is the one that keeps the production going and the team motivated. Some developers also engage with target audiences in an early phase of prototyping to probe the reactions of the intended players, but it depends a lot from one company to another.

4.3 IDEA PRACTICES IN GAME DEVELOPMENT

Idea generation, a task that is generally recognised as a critical part of innovation (Clapham 2003) remains as a big part of the creative processes. In general, the ability to generate ideas has been considered as one of the characteristics of successful business ventures

(McFadzean 2000). Studies indicate a strong relationship between the number of idea generation techniques and the number of successful products (Parnes 1961; Sowrey 1989). In game development, it is typical that ideas are drawn from other games and similar domains (Hagen 2009; Kuittinen 2011). Such an approach can be useful for incremental innovation, but it invites *design fixation*. Crilly (2015) identifies creativity techniques as one of the solutions in avoiding design fixation. According to Crilly, using suitable approaches makes it possible to avoid the dominance of precedents and conventions of a design domain. Altogether, different idea generation techniques and creativity techniques can support both coming up with inventive improvements as well as widening the perspective of the design domain.

In creativity studies, it is noted that idea generation is a relatively structured and explicable process (Mumford & Gustafson 1988; Perttula 2006). Ideation and brainstorming research is breaking the "black box" of creativity: even though the process might feel almost magical to the practitioner, it is possible to break it down through analysis and empirical studies. Understanding the process enables the development of systematic approaches for enhancing creativity. Such methods may also make a difference in game productions: A study of game design postmortems indicated that many of the difficulties with certain productions were due to the lack of systematic approaches, while other productions gained advantage on rationalising (Tschang 2007). It is also pointed out that most of the individuals have a greater creative potential than what they actually are putting in effect (Nickerson 2006). Studies show that creativity training has an impact on the creative input, especially to the originality of the ideas (Clapham 2003; Harkins & Marcosson 1990). As the mind is very efficient in creating patterns of thinking, there is a need to purposefully affect the processes in order to change the course of the ideas (de Bono 1970).

However, the role of a single idea is not dominant in game creation in the way the general creativity studies might suggest. The actual practice of making games is an organic, iterative process where ideas are added, worked on, discarded and changed within the development of a game – sometimes even at the last moments of the production (Kultima 2015c). A good portion of this dynamic is not realistically systematised in a straightforward way. As already discussed, the temporal and contextual issues play a big role in the volatile field of game industry. Even though in 2005 Tschang concluded that there is much room for systematising development processes in game studios (Tschang 2005), the modern development processes are approached with a different tone. The current state of the art in both game and software development is acknowledging the complexity of the design work proposing different kinds of agile development methods (Keith 2010; Kultima 2015c). Game developers do not only create ideas for the purpose of one project. They also record and store ideas for future projects as part of the creative quotidian. The creative processes overlap and reach over productions and even sometimes, firms.

The generation of ideas is not hard for the developers, but selecting the right ones for production is more challenging. Developers "bounce" ideas off of each other in order to probe reactions from fellow developers. But what else is happening in the actual process

of coming up with new ideas? My early study (Kultima 2010) painted a picture of an organic practice with varying approaches for inspiration and other aspects of the process. Even though other games are an important source for design examples, inspiration is sought from many domains and activities. The initial ideas are usually born in solitude, but seeking early feedback from colleagues is a regular part of the practice of developing game ideas. This has also been confirmed in my later studies and informal discussions with the developers.

Even though it is normal to feel like ideation is a mysterious process, game ideas do not come about by accident. Game designers have different means and ways of affecting their processes as well as different views on evaluating ideas and the overall role of game ideas within the production process. Experience on tools and techniques vary: some seek help from lectures, conference speeches or workshops on ideation while others might have education on creativity techniques from their studies. With the first and second generation of game developers, it is typical that their experience has moulded their processes rather than their education, which is often not game-related. For some game developers, the process can also be more natural while others might report how they are hindered by their self-criticism (Kultima 2010).

Game developers seek inspiration from various sources, e.g. books, magazines, TV shows, movies and playing other games. This has not changed too much during my studies: developers share similar interests with each other. For some, the creative act of producing new ideas is an attitude towards life: they keep their eyes open since almost anything could inspire a new idea. Some game developers seek inspiration on purpose; some just let the world around them inspire them. The quest for inspiration may be a more or less open process, but for some it may be a systematic, purposeful act for broadening their thoughts in order to bring about interesting ideas (Kultima 2010; Kultima & Karvinen 2016).

Additional and supporting ideas are also required to flesh out the original idea. The inspiration for those is obtained from similar sources, especially from related games and other forms of entertainment (Kultima & Karvinen 2016). While the game development process is always iterative in one way or another (Keith 2010; Kultima 2015c), managing change has become even more important along with the emergence of the service paradigm (Sotamaa 2010; Nummenmaa et al. 2013). In this way, it is not surprising that iteration, agile development and experimenting were the most popular answers when developers were asked how change is managed in their company in 2010. The importance of experimentation and prototyping is acknowledged especially in the era of the early mobile games (Ollila 2009). Nowadays, it has become more and more the industry standard.

Altogether, many of the approaches which game developers have towards idea generation are organic. Even though their practices might include more structured activities, the practitioners seem to struggle to explain the formal techniques they use for game idea generation. Quite often, techniques are used only once or twice, or their names are hard

to recall. Probably some approaches have “house rules” or are invented by the developers themselves. Of the specific idea generation techniques in my 2010 data (Kultima & Karvinen 2016), *brainstorming* was deemed the most popular technique, followed by hands-on approaches such as rapid prototyping. As a fourth, game jamming started gaining popularity in 2010 – nowadays companies might utilise internal and external game jams for their innovation processes. However, this approach is also not widely accepted and the practice differs from company to another. The practices of collaborative idea sessions in companies vary quite a lot: while some might report that they never organise brainstorming sessions, others say that they hold sessions on a weekly basis. This seems to be an interesting divider in company cultures and is probably also related to the varying management styles (e.g. Tozour 2014) in game firms. What I have also discovered throughout the studies is that some developers might browse Wikipedia or Google to find inspiration. In the modern era, many developers also use Pinterest and similar services for mood boards and I have also seen physical mood boards on the walls of game studios. Some consider prototyping as a technique for probing new ideas; instead of just testing whether an idea exists, a game developer can play around with prototype parameters to come up with new ideas.

Brainstorming is a word that game developers around the globe recognise. In the colloquial use of the word, brainstorming refers to many different forms of group ideating. More specifically speaking, brainstorming has a long history and several studies of the effects of it have enumerated both the benefits and the problems of the technique (Furnham & Yazdanpanahi 1994). It is believed that the successful use of brainstorming and the conduct of the session are crucial. An experienced facilitator is usually required, as he or she can successfully guide the process (Rossiter & Lilien 1994). What we also know from the academic perspective is that brainstorming does not necessarily lead to innovation (McFadzean 2000), and the experiences of the practitioners also in games confirm that (Gray et al. 2005; Shodhan et al. 2005). In practice, though, the sessions might not be facilitated in a proper way or there are other practical reasons for not getting the best out of the use of technique. Successful sessions need time, preparation and education of the participants and practitioners don’t always have that luxury. In my studies, game developers have reported that sometimes participants of the brainstorming sessions do not know how to act in the situation, and even just one such participant can destroy the experience for the others (Kultima 2010). On the other hand, exploring the different formal methods can be a cumbersome process if the only way to acquire an understanding of the techniques is through brainstorming literature (e.g. Michalko 2006). It takes a lot of thought and practice to pick the right techniques. In my study (Kultima 2010), many interviewees indicated that their ideation sessions were not that systematised, or that they were not sure whether brainstorming sessions were conducted in the best way possible.

In our 2010 survey (Kultima & Karvinen 2016), a bit less than a half of the respondents expressed that they liked to ideate alone, while the rest of them preferred to discuss ideas with someone else. Interestingly, the more experienced, educated and high-position respondents preferred discussions more than the respondents with less experience. It is

not clear whether this is just a generational issue or tied to the professional development of game expertise (cf. Lawson and Dorst 2009), but the more I have discussed with game developers, the more I believe that the literature of brainstorming techniques should also cover these organic practices. In the end, bouncing ideas off of others is also a method, but not often treated as such. The volatile game business calls for tight schedules, where there is not always time for dedicated group ideation sessions – but, for instance, a game designer can take the time to chat with people in smaller groups. However, the particular role of a game designer does not mean that they are responsible for all new ideas. It is more likely that a game designer is the one who collect ideas from others to work towards a consistent concept.

Even though organic approaches are important to understand, the benefit of the formal techniques might be critical to shake the habitual thinking of the creative team. On a practical note, it seems to be a rather difficult process for many small game companies. Training and changing practices take up a lot of time, which is precious for the game production process itself and anything that does not directly push the process forward might seem like a risk in the schedule. The emphasis should be on the education of future game designers and the development of curricula at universities and other educational institutes. There is room for developing better creativity techniques and approaches for game developers' specific context. Such techniques should also realise the issue discussed above how game ideas are starting points and do not survive the process as such. Tools do not seem to be attuned to the realities of the productions.

Game ideas are born in a variety of situations and the ideation process is not always limited to the working hours. In our 2010 online survey (Kultima & Karvinen 2016), roughly half of the respondents reported having new ideas outside of working hours (e.g. at home, in bed, etc.). The average percentage of working hours used to generate new ideas was 16%, although this, of course, varied across different roles. For those respondents who said that their job was to generate new ideas ("ideators"), the average share was only 21% and for others 12% of their working hours. It is also noteworthy that the percentage of the ideators varies much more, ranging from 0% to 100% (standard deviation 23), when for others the range is from 0% to 50% (standard deviation 16). Median for the ideators is 10%, for others it is 5%. This indicates that while some developers used most of their time to generate new ideas, it was more common that this was only a small portion of their working hours. Such a finding is important for the discussion of sustainable work life as well as the development of the transformation from hobbyists to professionals within the industry. It can be also discussed that the mobile game development of 2010 had heightened the need for game ideas as the production cycles were short and games were relatively simple. The usage of spare time for the creative work is an indication of passionate hobbyists who do not stop thinking about their work while they are out of the office. On the other hand, it can also be read as an indication of the lack of acknowledgement of the creative input within the allocation of the work hours as well as the management of creative roles and on the mature industry these issues should be addressed like in the report of IGDA (Edwards et al. 2014) to ensure the well-being of the staff.

Then again, the idea generation is not the only idea activity that game developers do in their practice: ideas are recorded in various ways and they are shared and reused with different tools. Even though there were many digital tools already available, developers seemed to use quite traditional tools to record their personal ideas in 2010 (Kultima & Karvinen 2016). Analogue tools, such as personal notebooks and the use of sticky notes were dominant approaches. As for the companies' general recording practices in our 2010 study, there were two clusters by company size. Small companies (10 or less employees) favoured easy and versatile third-party systems that usually needed no maintenance (e.g. Google Docs, Dropbox). In bigger companies, internally-maintained systems, such as wikis or network drives were popular. However, both verbal and functional (like playable prototypes) documentation were used reflecting the study of Hagen (Hagen 2009, Hagen 2012). Documenting practices still vary from company to another coming to 2017, even though it seems that the popularity of design documents has been diminishing every year. The document practices also vary depending on how large of a creative group is operating on a single game. In small teams, it is easier to communicate and keep track of design decisions organically, whereas in larger teams, more rigid documentation practices might be needed. Moreover, in mobile game development, the idea need is different and is comparable to large scale productions of AAA titles.

An important supplementing question in our 2010 study was how the stored ideas were used after they were created. Interestingly, the results show that ideas were rarely used on their own to create new games, but more often used as inspiration for new game ideas (Kultima & Karvinen 2016). In the GaIn project, we took this finding and designed a concept of an idea recording tool that would take this functionality into consideration (Kultima & Alha 2011a). To this date, there seems to be no industry standard tool that would take advantage of this finding.

4.4 GAME DESIGN CONSTRAINT

In the GameSpace project (Paavilainen et al. 2009), we were studying new design fields of casual, mobile and multiplayer games. The blue-sky ideation methods in our workshops were working well, but it was often discussed as to how, in practice, game ideas are born around a selected topic, technology, genre or something else. The concept of design constraint became important and we have conducted two interview studies specifically targeting this. In 2009, we ran ideation workshops for Finnish game developers from their selected theme fitting to their production processes (Kultima & Alha 2011b) and, in 2016, we ran a game jam with out-of-the-ordinary design constraints (Kultima et al. 2016).

According to Lawson (2005), a *design constraint* is a requirement that narrows the solution space for a certain design problem. For instance, in architecture, it can be legislation, material, requests of a client or even the personal preferences of the architect. Constraints are often the starting point for design as without constraints the design would have no clear direction (Lawson 2005). For Lawson (2005), the design problem is constituted of different constraints guiding the direction of the process and the design decisions made. In

his model, three dimensions of a design problem are: different actors providing and giving birth to design constraints, the type of the constraint and the function of the constraint. A design constraint can be created by or because of different stakeholders of the design project (designer, client, user or legislator(s)). The type of the constraint in relation to the design can be internal: under the designer's direct control; or external: contextual. For Lawson, the function of the constraint can be radical: strong effect on the design; practical: realities of the producing; formal: visual organisation of the object; and symbolic: expressive qualities of design (Lawson 2005). The constraints can be also examined in terms of how much freedom to deviate three is for the designer: whilst the designer's self-imposed constraints or constraints internal to the design can be more flexible, the constraints derived from legislation or other outside factors are more binding (Lawson 2005).

Design constraints are central in game design: even though games can have many, the everyday practice of a game developer is filled with factors that define which ideas can be executed or even explored. Just like any design process, game design also contains several constraints and other limitations for the projects. Some game projects start with thematic constraints, but it is usual that the design space is impacted by the provided technology or platform of the game within the digital game productions (Kultima & Alha 2011b). Some constraints are formed inside the development team. For instance, some design directions can be chosen through the personal preferences (e.g. particular style or fictional environment) or limitations of the team (e.g. lack of skills) (Kultima & Alha 2011b). Many limitations and directions for commercial game projects come from the outside, such as a certain target group or a chosen genre provided by the various stakeholders of the project (Kultima & Alha 2011b). Furthermore, a game design constraint can be inclusive (i.e. what is included in the project) or exclusive (i.e. what is purposefully excluded from the design) (Kultima & Alha 2011b). The designers can either focus on what to include and what to exclude from the design.

In the game development, the design constraints can be of various forms. We can talk about thematic elements, genres, target groups, platforms, and other technological factors. Almost any aspect of a game can be a design constraint. Intellectual property related elements are typical sources for game design constraint. For example, a specific theme, name for the game, characters or a fictional universe can set the direction for a development process. A certain game mechanic can also be the chosen starting point and is often tied to a selected genre. A game genre as a design constraint guides the designer to use certain design conventions making the game easy to communicate for the players. The design conventions may also come from the publisher, or they may be dictated by a technology, such as the platform or tools. The selected technology may constrain the development process in several ways. For example, in designing a game for a mobile phone, the designer has to take into account the screen size, controls and limitations in memory and power use. The programming language or developmental tools may be also frame the design as some features might be easier to create than others. Furthermore, constraints may come from the publisher, rise from the results of focus group testing, be

part of the company portfolio strategy or framed by the available resources. Just like game ideas, the design constraints might also be re-evaluated once the production proceeds. The design process often includes several simultaneous constraints, sometimes in conflict, making the design challenges more complex.

In 2016, we conducted an interview study of game developers participating to a constrained game development event, Survival Mode 2016 (Figure 21). The jam was organised in Finnish Lapland as the northernmost jamming site of Global Game Jam (GGJ) 2016. The event differed from the typical Global Game Jam site in Finland in terms of participants being mostly experienced game developers and that the jam offered additional design constraints for the participants. The interviewees reflected on their projects and experiences with design constraints providing interesting insight to the role of design constraints in game development and the difference between a jam setting and commercial game creation projects.

The game jams are interesting contexts for game design praxiology, especially related to design constraints. Game jams are game creation events built around particular developmental constraints. A typical design constraint for a game jam is the set theme guiding the direction of the jam projects (Kultima 2015b). Game jams have been touted as accelerated game development events – usually referring to the time constraint and other constraints (Kultima 2015b).

The Survival Mode experiment proposed several different design constraints to the participants, of which some were more pivotal to the processes and some of them just outlined the setting and the resources for the game's development without affecting the design solutions. The participants were not only affected by the thematic and practical design constraints provided by the jam setting, but they also brought in constraints that were sometimes decided prior to the jam. Some participants came to the jam with set design goals for themselves. In addition to the global theme ('ritual'), the participants of the Survival Mode 2016 had an extra thematic constraint ('border') and the setting of the event itself created such constraints as limited Internet connectivity and power supply.

The comparisons that the participants of Survival Mode 2016 made between the jam setting and commercial game development were interesting. Some of the interviewees expressed how they considered jams more relaxed in terms of the lack of the pressure of commercial constraints or how well the code would hold in the future. The design constraints in a game jam setting can be similar to those in commercial productions, but in a jam setting it is more playful – despite the fact that constraints were experienced as less flexible and more binding in a game jam setting. In a jam setting, the team members might also have more agency to their work while there can be very little space to express oneself in commercial game creation projects. In both settings, there is always a time constraint. The participants were expressing that time constraint is not always that binding in commercial productions. Even though there are similarities between the jam and work settings, there are also differences in these experiences. Furthermore, it is important to

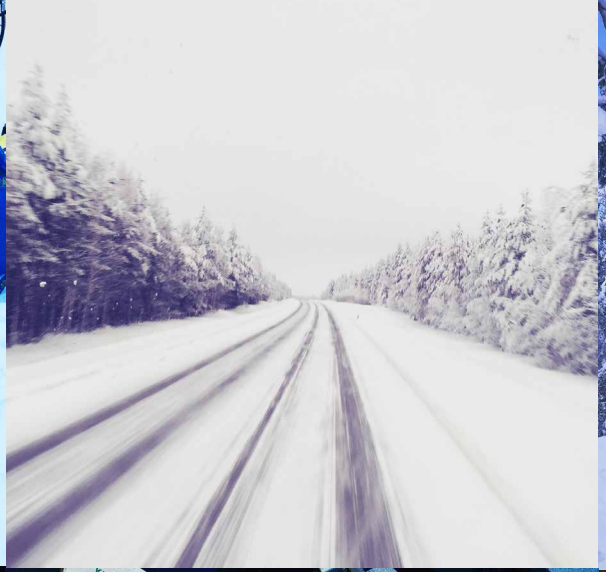
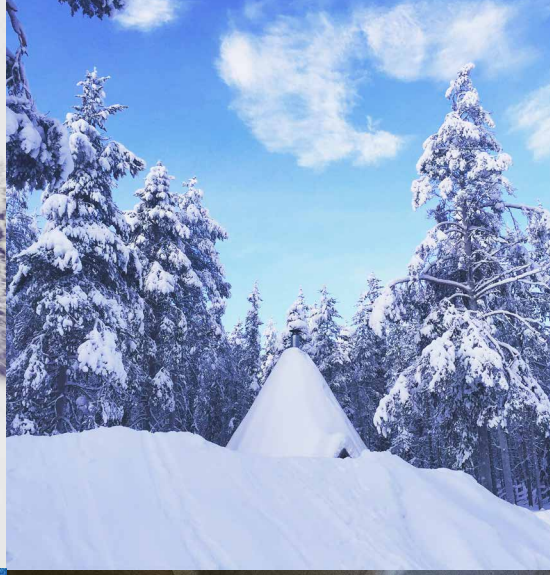




FIGURE 21. MOMENTS FROM SURVIVAL MODE 2016. A GAME JAM THAT WAS RUN IN THE NORTHERN FINLAND WILDERNESS. ABOVE THE ARCTIC CIRCLE. THE EVENT ALSO REACHED THE ATTENTION OF INTERNATIONAL GAME MAGAZINES. SUCH AS EDGE.

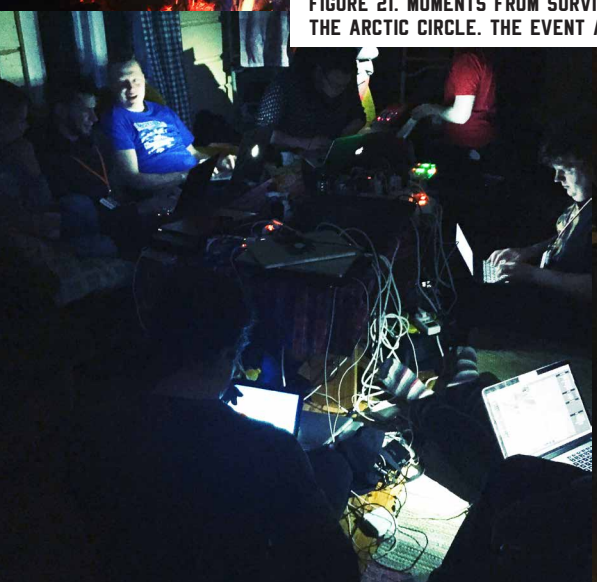



FIGURE 22. BRAINSTORMING SESSIONS AND WORKSHOPS WITH GAME DEVELOPERS BETWEEN 2006 AND 2016.

note that game jam participants, such as game developers in general, work with several design constraints throughout the projects – some of them are set by the event, some are set by the participants themselves prior to the event and some emerge during the event.

Every choice in development creates a design constraint: whether you choose a feature to work with or technology to use, it will set your focus on a certain direction. Limiting the design choices can also provide relief from self-criticism and time consumed in the project. Design and developmental constraints in this sense might not be experienced as negative factors, but more positive factors for the developmental experience. For some, constraints can even provide enjoyment and help them make better games.

There is a parallel of game development as playful activity. The constraints for the development provide direction and focus for the projects but also challenge for the creators. Jam game creation closes in on a game-like situation where unnecessary obstacles are commonly agreed and acted upon in order to reach a certain goal – thus creating a playful atmosphere with a lusory attitude (cf. Salen & Zimmerman 2003). In this way, for many participants, the constrained game jams can be satisfying in a similar way as playing a game can be (cf. Goddard et al. 2014). This provides an interesting opportunity for a comparison of the experiencing rigidity or flexibility of the design constraints in work-life vs. virtual settings, such as game jams. When in a commercial production deadlines and other constraints might be experienced as stressful, a playful design constraint can be pleasurable like playing a game.

4.5 IDEAS ON DEMAND

In the GameSpace (Paavilainen et al. 2009) and GaIn (Kultima & Alha 2011a) research projects, we created idea generation games that would facilitate the ideation of game developers. We designed a couple of game-based brainstorming techniques to be used, initially only, in our research workshops. The experiences from these projects led me to push these tools forward and examine the effects of the approach in more detail – and I have also continued running various brainstorming workshops distilling and contesting the lessons from my studies (Figure 22). For instance, it is interesting to reflect on how much the stimuli in the methods matter and how well they can fit to real productions and constraint-driven processes. Furthermore, I have been interested in the game-based methods as they seem to offer a compatible approach to game design practice for their fast pace and a low threshold for adoption (Paavilainen et al. 2009; Kultima 2010; Kultima & Alha 2011b). Game-based brainstorming methods are also a great fit for the ideation workshops.

One approach in particular that we designed in GameSpace project has gained more popularity than the others: a card game called *Verbs, Nouns, and Adjectives* (VNA) (Kultima et al. 2008a; Kultima et al. 2008b; Kultima & Alha 2011b; Kultima 2017). VNA is a simple, playful brainstorming technique based on the *forced combinations technique*. It has three decks of cards: verbs, nouns and adjectives. Each of the cards has one word printed on

FIGURE 23. VNA VARIANT USED AT FGJ TAMPERE 2011 WITH THE THEME 'EXTINCTION'.

it; this word functions as a stimulus and an inspiration for shared ideas. The words have been collected from both digital and non-digital casual games, as the original purpose was to facilitate casual game ideation in one of our GameSpace workshops. The game is usually played in small groups, where the first player picks a random card from the verb deck and uses the word to ideate the basic idea for the game. The next player then picks a random noun and adds to the game idea described before. Finally, the third player (or the first if there are only two players) draws an adjective and finishes the game idea. The idea is documented and the round is repeated by a different initiator. The words in the cards should be used for free mental association, meaning that the game idea is not based only on the combination of the three words. The rounds are kept fast and responsive, and less analytical. VNA rapidly produces high-level game ideas and as it offers random and surprising stimuli, it results in ideas that the users might not have otherwise come up with (Paavilainen et al. 2009; Kultima et al. 2008a; Kultima et al. 2008b).

VNA is a simple yet relevant tool for designers to use to supplement their creative processes and to help them work under time pressure. However, ideas do not always fit with the original design problem or the constraint. As the tool is already somewhat domain specific, we were interested in designing an experiment that explores how we could better fit the game to constrained game ideation. For this purpose, we ran a game idea experiment at the Global Game Jam (GGJ) 2010 and 2011 events in Tampere, Finland (Kultima & Alha 2011b). In this experiment, we examined how well the game-based ideation method Verbs, Nouns and Adjectives (VNA) and similar approaches fit the constrained game design processes. The jams had a globally shared theme constraint: ‘deception’ in 2010 and ‘extinction’ in 2011. We wanted to know whether VNA could be tailored for the needs of the constrained design process and made alterations to the cards of the game to use in our experiment.

Our Extinction VNA variant (Figure 23) consisted of the same game mechanic used in VNA, where the decks of cards are laid on the table and each participant takes one card at a time ideating on the shared idea. The second deck is identical to the verb deck of VNA. The first and last decks are different: The first deck is based on the constraint of the jam including words, sentences and quotes or other concepts relating to the ‘extinction’ in one way or another. These were, for example: “Death”, “Only a handful of individuals survive”, “Extermination”, “Capacity to breed and recover”, “Poor health or old age”, “Loss”, “Birth”, “Creation”, “Beginning”, “Half of the presently existing species may become extinct by 2100.”, “Don’t forget this club nearly went out of extinction last year.”, “Freedom is never more than one generation away from extinction.” and “The problems of this world are only truly solved in two ways: by extinction or duplication.” The tailored deck was formed by aiming to break down ‘extinction’ into several possible subtexts. The third deck was a deck with graphic stimuli. The other approaches used on the ideation facilitation at the jam were the regular VNA deck, freeform ideation (participants were not facilitated) and “Keita’s Way.” The latter was an approach inspired by the Keita Takahashi’s keynote for GGJ 2011. In general, the Extinction VNA variant outperformed the other methods. All the ideas produced by the variant were marked as interesting by the panel of evaluators,

FIGURE 24. THE VNA CARDS USED IN MY EXPERIMENT. I CARRIED THIS BAG ON MY TRAVELS FROM 2009 TO 2012. NEVER LEAVING HOME WITHOUT IT.

VERB / ACTION LOOK EVERYWHERE	NOUN / ENTITY GHOST	ADJECTIVE / PROPERTY QUIET
VERB / ACTION FIND	NOUN / ENTITY CUBE	ADJECTIVE / PROPERTY PARALLEL
VERB / ACTION SWITCH	NOUN / ENTITY DOOR	ADJECTIVE / PROPERTY WOODEN
VERB / ACTION WRITE	NOUN / ENTITY FUGITIVE	ADJECTIVE / PROPERTY SATISFIED
VERB / ACTION DISCOVER	NOUN / ENTITY NOTE	ADJECTIVE / PROPERTY GLIMMERING

they were deemed as fitting to the constraint and, furthermore, ideas did not come out as uninteresting.

To understand the role of a single stimulus in more detail, I conducted a more controlled ideation experiment during 2009-2012. I picked a set of random VNA cards to be used in 40 participant brainstorming sessions (Figure 24). The participants used the deck in pairs: each pair was provided with the same stimuli in the same order. The ideas formed were analysed and the connections of the stimuli with the ideas were tracked. *Atomistically*, the ideas had strong connections to the stimuli, whereas the final ideas were different from each other. Even with identical stimuli, the participants emerged with diverse game ideas using the technique, only couple of ideas were identical. These ideas shared the same movie reference manifesting the phenomenon of *design fixation* (cf. Crilly 2015).

Crilly (2015) concluded that one of the means of avoiding design fixation is to resort to design methods and techniques in addition to the designer's awareness of the phenomenon itself. Expert designers are aware of the problem of design fixation, acknowledge it as a difficult problem to gain control of and yet they still take steps to address the issue. He discusses how such effort is challenged by the needed commitment and persistence that a design process naturally requires. In my experiment, the use of the forced combination technique resulted in unique ideas despite the fact that none of the pairs were able to completely avoid the literal interpretations of stickiest stimuli words. The role of stimuli can be considered even more complex when taking in consideration the nature of iterative game development process and how ideas change in it.

Ideation techniques work on multiple levels enhancing the creative process. The immediate effects of an idea generation session are important, but the session can also inspire and different techniques can spark new approaches. For the ideation session, the number of ideas produced is important. In a short time, one can explore various directions and choose the most interesting ones. These ideas can be evaluated based on their originality and utility in a separate session. A good technique is efficient in a given time slot advancing the production in a possibly challenging situation. However, these are not the only factors that matter, since the role of an idea is complex. Inspirational and activating effects can be considered equally important. Ideas spark other ideas and the creative process will continue outside the ideation session.

It is also important to note that ideas are usually recorded as whole entities, but when they are revisited they are used partially for inspiration (Kultima & Karvinen 2016). New perspectives created with formal techniques will affect the work habits and give tools for the developers to reflect their practices. Training with the different variations of brainstorming techniques can improve the game developers' toolbox for on-demand-ideation.

In the end, the creative process is essentially organic and subjective: successful creative strategies are born from experience and personal experiments. Lawson (2006) argues that often the role of the design methods is to operate on the background instead of the

designers having to follow the textbook examples in practice. Successful designers have their own tricks, tools and gambits to exploit in their creative processes.

Ideation techniques can have other important properties in collaborative creative processes. VNA sessions in my 2009-2012 experiments as well as VNA workshop sessions outside the experiment have been full of laughter and the participants have seemed to enjoy the brainstorming as well as get entertained by their own ideas. Observing the participants of the 2009-2012 experiment, it was interesting to see how sometimes an inspiring idea was influencing or “bleeding” on the next idea and the enthusiasm was shared among the participants. Even though it is typical that in such a session one participant can be more dominant, the rules of the technique encourage everyone to contribute. The social dynamic of an ideation session is important. Collaborating on ideas creates a shared understanding of the vision and more creative agency for the developers, which can be crucial to a game development process. Part of the popularity of VNA can be explained by the positive social experiences it might bring about.

Drawing from my overall ten-year study, I conclude that idea generation methods should be evaluated in the context of their use. The laboratory setting and experiments do not capture the whole creative process and the long-term effects of the techniques. Much of the literature in creativity techniques does not at all focus on this. What I have learned from my studies is that there are certain thresholds for use in terms of the practical situations. For instance, the methods need to be explained to the participants, the sessions require preparations and a time slot has to be scheduled. Taking time from the whole development team for brainstorming a solution for a single challenge might be too costly. If the threshold is too high and preparations take too much time, it is easy to let go of the formal techniques and instead rely on the organic approaches. It does not matter whether a technique is providing useful and fresh ideas in a session if it is not easy to set. In this way, the best method is the one that is used.

Our studies with VNA suggest that game-based idea generation methods tackle some of the problems of use. VNA is flexible and simple enough for the game developers to adopt and use. It is also enjoyable for the users and provides possibilities for them to change the rules and test different variations to the gameplay. It also feels natural for game developers and supplements their everyday practices. Whether the game ideas arise from playing other games, discussing with friends and peers, conducting research on a design topic, walking around your living room or travelling on a train, formal methods work best in supplementing the organic practice.

4.6 PLAYFUL OFFICES OF GAME DEVELOPERS

Ideation is also an organic process that happens on the background of the other work tasks. One way to affect this is to take care of the creativity of the team at large. Creativity has been emphasised as a key factor to organisational adaptability and competitiveness in rapidly changing business environments. Designing and managing office environments

facilitating creativity have received growing attention, resulting in a line of research focusing on the dynamics of the social-psychological issues at work (Vithayathawornwong et al. 2003). The strategies that game companies use for enhancing the creative atmosphere vary. Many studios invest in diverse teams and some are seeking ways to enhance the innovation processes including ideation and brainstorming. Games and play are present in multiple ways in the game work providing stimulus for playful environment. Playful approaches are natural for the game industry and this can also be seen in the interiors of the companies as well as in the company cultures.

Even though less academic attention has been devoted to the creative processes and everyday work of game developers in general, an extensive body of studies on other industries have also been conducted from the perspective of playfulness (e.g. Hunter et al. 2010; Baldry and Hallier 2010; Strömberg 2009; Karl et al. 2005; Fleming 2005). Despite the increased flexibility of a modern office with laptops, personal mobile devices and cloud services, many game companies still hold it important to share a physical space where the team-oriented and communication-dependent creative work can happen. In general, the properties of the physical environment have widely been acknowledged to have an effect on the behaviour of the organisation personnel on other industries and to the creativity of the personnel (c.f. Davis 1984; Vilnai-Yavetz et al.; 2005, Brooks 2011).

Despite the volatile nature of the industry, the special relation of the game companies with the *sphere of play* is interesting. Elements of leisure, play, fun, enjoyment and engagement are familiar, if not mundane, to the game developers. At least in principle, the personnel of a company have a lower threshold for play (cf. Kultima et al. 2015) and can also be more proactive in engaging play at work. Play is not only “normal”, but also an inherent part of the development processes. The iterative development processes of games entail developers engaging in game playing (Fullerton 2008, Kultima 2015c) and the overall process itself could be seen as playful. The change-driven nature of the industry invites industry practitioners to celebrate the culture of failure – which is inherent in digital game play (cf. Juul 2014). Furthermore, the concepts of design and creativity bear a resemblance to that of play. All in all, game industry forms an interesting arena for examining the *intertwined relations of work and play*.

During my studies, I have visited a handful of game studios (Figure 25). The interiors of game studios look a lot like any software houses or other contemporary offices. Many game studios are built around an open plan or combi office concept, and in bigger studios the layout might be divided into meeting rooms to foster teamwork. Even though most of the work is done on computers, sometimes companies might have art supplies and other materials for physical prototyping and inspiration. Many offices have whiteboards for enhancing communication and walls with Scrum tables to keep track on the progress of the work. The layout of the office desks is also important: teams need to be located in the same spot and in some offices the managers are among the other employees to promote a certain work culture. In addition to the meeting rooms, some areas can be purposefully built to gather people together. For instance, in bigger companies, the kitchen area can

FIGURE 25. INSIDE GAME STUDIOS BETWEEN 2010 AND 2012. DEPENDING ON THE COMPANY. THE INTERIOR DESIGN WAS MORE OR LESS PLAYFUL.

work as a hub for the employees to bump into each other during the day. The studios are often decorated with colourful elements and it is typical to see drawings, mood boards or photos of the staff on the walls. Unconventional objects, furniture and décor can be part of the office design. Such objects as a bubble gum machine, lip couch, rack on the ceiling, hammock, swing, franchise toys and self-made plush toys among others can be found as part of the interior. In general, the physical environment is still an important part of facilitating creative work. However, the interior solutions largely depend on the resources of the company.

In 2010-2012, we conducted an interview study to examine the presence and the role of playful elements at the studios (Kultima & Alha 2017). From this study, we concluded how in the companies, play is present at least on a functional level – play being part of the work of the game developers. Altogether, game companies celebrate play on a *symbolic*, *social* and *instrumental* level. The office play can manifest through several overlapping play strategies at the studios. At a minimum, play can include acts of socialising through play and games as well as instrumental play of games. Many employees have come to the game industry through their gaming hobby and this further connects the members of the staff. In addition to research through game playing, games are also played together for fun and for relaxing and enjoying collectively. Furthermore, it might be common to decorate the office together building playful interiors, such as a fantastical forest with life-size plush toy or other decorations through playful competitions or get-togethers. Many game studios, for instance, have drawings on the wall made by their artists. Creating together, or making things on their own, can be an important part of the office culture and a source of pride and engagement. It seems to also be typical that the companies' digital IP and products are somehow materialised at the office. The offices are not only branded for PR reasons, but the brand itself can be part of the play by the members of the staff and the materialised elements can even work as extensions of digital work of game productions. Due to the emergence of online game player statistics, some companies might also have info screens presenting the current statistics. The presence of statistics at the office interior can be rewarding for the development team if game is doing good.

Game studios are special arenas for play. On the one hand, game companies belong to the creative industries, where elements of active creation are visible in the office design. The creation process of games has already several layers of playful elements weaved in, but material objects, environments and physical spaces can also be used as extensions of the playful creation processes despite the digital nature of the work. On the other hand, playing games in order to internalise design conventions and stay updated is part of the important prerequisites for the work. At the same time, playing games keeps the community glued together. Valuing play is imprinted within the professional identity of the game makers. If, in the software industry, play is inseparably intertwined with work, as suggested by Hunter et al. (2010), in the game industry these layers are deeply entangled. Furthermore, the growth of the game industry has led to a rising competition over talent. Therefore, the attractive office and playful atmosphere are also a means to attract and keep the employees.

However, office play is not the same from one game company to another. Some companies follow different strategies and form different play cultures within their offices. Due to the intertwined relationship between work and leisure time, some strategies reflect the products created. For instance, brand play can be more natural for game companies with character driven products and online metrics as a tool for spontaneous gamification is irrelevant to those whose products are offline. As the office is among one of the biggest expenses of the firm, playful elements are not always realised in the same way. Smaller companies prefer to invest in the mere inevitable, whereas the more successful companies can afford to pamper their staff, impress visitors and attract talent through interiors. To even have a place for game consoles, can be a stretch in small companies.

4.7 INNOVATION ATTITUDES AND PHILOSOPHIES OF GAME DEVELOPERS

Ideation is part of the *innovation practices*. 'Innovation' is a popular term in business jargon, but it is not always clear what is meant by it. In our study (Kultima & Alha 2010), the game developers tied 'innovation' together with a family of other concepts and expressions, such as change, different, evolution, inventions, new combinations, going off the trail, breaking patterns, breaking new ground, rethinking or even indie and play. Usually, innovating was seen as creating something fresh, but also as finding or trying out something new. For some, it also meant coming up with new ideas or concepts. Others think that innovation is always founded on something existing; it can be a refinement or a new combination of existing things. It is also considered something that breaks existing conventions and defines itself in opposition to them. Some interviewees connected innovation to value, saying that it is not enough for innovation to be something new and that it needs to have other properties: quality, meaningful, interesting, improving, making difference, important or user-driven. On the other hand, some think that it is possible to be too innovative or to innovate poorly.

The academic literature differentiates *invention* from innovation. Cumming (1998) defines innovation as "the first successful application of a product or a process", emphasising the application instead of mere fresh ideas. In his listing of "50 greatest game design innovations", Adams (2007) is emphasises this separation: he discusses that many game innovations have precursors that have not been as successful in introducing the new feature to the masses. It is the successful implication of an idea that counts and impacts the industry. Turning invention into innovation requires resources for working out ideas and implementing them in a successful way (Faberger 2005). The process of innovation can also refer to the gradual process of product refinement, including the introduction of an innovation as well as later, improved innovations (Goldsmith & Foxall 2003).

The concept of innovation is related to the concept of *creativity*. Dino (2017) discusses how these overlapping terms are connected, yet not the same. Both concepts have been defined using the attributes of novelty and usefulness (Amabile 1996; Glynn 1996). While these are often studied separately, there should be more multidisciplinary efforts to

connect the examinations. Dino (2017) emphasises that, whereas ‘creativity’ is pointing to the successful generation of original and potentially useful ideas, ‘innovation’ points to the successful implementation of such ideas. A clear-cut difference in these concepts, however, is not widely shared within the academia and the same issues are discussed in overlap in various debates. For the practitioners, however, these terms – creativity, invention and innovation – are often interchangeable.

Creativity and innovation are important to the game industry, and this does not only mean brainstorming new ideas. The process of making new games is social and personal. As already discussed, the concept of innovation might mean different things to different people and the practitioners tie multiple other phenomena into the concept. Many members of the industry see the field as something that is unique, where innovation is built in (Kultima & Alha 2010). For some, it can be the very reason they want to create games. The industry offers opportunities to create on many levels. Whether this is about new gameplay, technology or business models, for an industry moving in fast forward, it is all about exploring new areas. The multitude of voices and personas hold in this topic: practitioners do not always agree with how one can or should innovate.

In an interview study conducted in 2009 (Kultima & Alha 2010), we separated seven different attitude profiles that reflect the diversity in attitudes towards innovation in the game development. We named these profiles as *artists, universalists, followers, evangelists, nihilists, instrumentalists* **and** *scarecrows*. Artists consider it important for them personally that they are innovating and creating something new. They are characteristically more motivated by things other than money, such as peer respect. Universalists see innovation as an intrinsic value for games and game development. They believe that everything they do is always somehow connected to innovation. Followers keep an eye on other innovative games and trends within the industry and are more focused on incremental innovations. Evangelists celebrate the innovation potential of games and call for action for others to join this celebration. Nihilists have a more negative attitude towards innovation. They either do not believe in innovation, do not want to innovate for innovation’s sake or want to innovate but for some reason they have no opportunity for that. Instrumentalists believe in processes and tools to work with innovation. They discuss how innovation can be managed, which tools and methods are useful or what would need to be done in order to improve these approaches. Finally, scarecrows see innovation as a risk warning others about the challenges in it. Innovation is part of the game developers’ professional pride. Developers might present very personal desires for innovation and enjoy peer respect. Some even take it as far as declaring that their whole purpose in the industry is to innovate. Innovation remains an important value for game developers, but individual practitioners might be positioned in different ways towards it.

In my studies, I have also been interested in what might be behind the differences in opinion. Utilising the profiling in survey data from 2010 (Kultima & Karvinen 2016), the attitude profiles were analysed in light of such factors as age, nationality, position and experience. It seems that generally the younger and less experienced developers were

more enthusiastic about innovation or inventing something new. Developers in project management positions had more faith in controlling innovation than others, which is natural as this comes with the job. In addition, developers who had experience with console development were more cautious. Our study was tied to a certain era in game development, where the power structures of console game development were colliding with the promise of the new cultures of mobile game development. As certain constraints of console game world might have contributed to negative attitudes, some positive attitudes could be explained with more flexible and emerging environment of mobile in 2010. Whereas the control in the console environment might have been perceived to be in the hands of other industry actors, namely publishers, the control of the new area of mobile development was not yet socially organised.

One could argue that the instrumentalist views presented in these two studies reflect the maturing state of the game industry in 2009 and 2010, as it was undergoing changes and heading towards more refined processes (cf. Tschang 2007). However, the diverse views expressed in the 2009 (Kultima & Alha 2010) and 2010 studies (Kultima & Karvinen 2016) might not be reaching more consensus as the ecosystem is widening. Perhaps in today's field of game making, the attitudes towards innovation and creativity are fluctuating even more. As game creation is a purely artistic endeavour for some in the field, it is a matter of rationalised business for others. The differences between companies and collectives vary as much as they can vary among the individuals within those communities.

In 2010, we asked game developers to depict their production process from the perspective of innovation (Kultima et al. 2012). Analysing these pictures, we came to the conclusion of four different philosophies in managing the creative process: idea, human, evaluation and iteration centric approaches. The view was really simple: the topics were concentrated on four different emphases: the importance of the personnel, the importance of the ideas, the importance of the selection process and the iterative practice of making games.

Idea centric innovation philosophy reflects the belief that ideas are central for the innovation: the original idea is the key to an innovative end product. The core idea may be modified during the development, but it always exists and guides the development process. In this way, the production is about the implementation and refinement of the idea. This is the way that game production is sometimes characterised by players or outsiders of the industry. *Human centric innovation philosophy* reflects the belief that people and human resources are central for the innovation: being able to produce innovative end products is about having the right people to do the right things. Recruitment and management are important. This could also denote the belief that innovation emerges from the (collaboration of) people, for which reason the production process is heavily about labour division, collaboration and communication processes. In this sense, it is critical for the company about how they select and attract talented people. This is often seen as the way that people from the inside of the game industry are talking about the innovation processes.

Evaluation centric innovation philosophy reflects the belief that evaluation and selection processes are central for the innovation: there is always more than enough ideas. What is essential is the skill to pick the right ones for production. Evaluation is present throughout the development and less important features are cut off. The selection and filtering processes as well as the development of such practices are critical for innovation. *Iteration centric innovation philosophy* reflects the belief that iteration and flexibility are central for the innovation: what matters is the execution and design opportunism. While one cannot know beforehand how the idea works in practice, it is important to keep iterating and testing different solutions allowing the product to change its direction flexibly. Ideas are only the starting point, from where the production moulds into the direction that it actually can.

These philosophies were all visible in the developmental process pictures of the developers - nobody represented only one type of innovation philosophy. Innovation in game development in 2010 seemed to be concentrated on ideation, social, evaluation and iteration. What was almost missing from the views of 2010 was the user-centred design that is more central to many game companies in current era due to the better access to user metric tools and services. Even though processes change with time and differ from production to another, the 2010 study (Kultima et al. 2012) highlighted the down-to-earth, organic approach of the game developers and in most cases this is still the widely accepted approach.

4.8 PLETHORA OF IDEAS

In summary, game innovation processes are not solely based on a single overarching game idea, but rather on different idea acts: nurturing creativity within the company, producing different kinds of ideas along the way as well developing the concept throughout the whole production cycle. The described dynamics of the creative process may not be unique to the industry, but it gives us a view of what developers might see as central and what kind of challenges they face.

Fullerton (2008), an American game designer and educator, recommends aspiring game designers to “live a full life” with curiosity towards the things around, to meet interesting people and to go to exciting places and events – in order to become “a person full of ideas”. Aspiring game developer can learn the elements and processes of game creation from various books written by the experienced developers (cf. Adams 2010; Fullerton 2008; Perry & DeMaria 2009; Schell 2008; Salen & Zimmerman 2003), but the practicing developers need to stay fresh and updated. Game professionals share their experiences generously at industry seminars and conferences around the world. However, the general sentiment within the game industry is that the field is not lacking in “persons full of ideas.” Game development calls for multidisciplinary skills to make the ideas come alive. Brainstorming or ideation is an important part of the process, but just one part of it.

As the changes in the industry provide possibilities for new innovations to thrive, it also creates the instability among the actors of the field. The innovation processes have to be

flexible enough to react to the merging of new trends and the change of the platforms. Even though ideas can be touted as the critical part of the innovation processes (Clapham 2003), game developer needs to emphasise and support creativity not only on the pre-production and idea management, but also throughout the whole production process. Creativity is a vital part of it from the idea phase all the way to the maintenance of the game. One of the enduring claims in the brainstorming literature is that quantity leads to quality in ideation, but this is an oversimplification as the process is also guarded by many cognitive processes (Perttula 2006). Looking at the creative practice of game developers, the picture is even more complex – humans, attitudes, techniques, differences, education, tools, iterative process and the challenges that they face all contribute to the process. However, the development of a game is filled with ideas. Even though quantity would not lead to quality, it will lead to flexibility. When one idea does not work, the developer always has something else to work with. Carving an experiential product calls for an agile, iterative process which will never guarantee a linear path.

In 2016, in a Finnish game industry conference Games First both speakers from Remedy and Supercell were talking about their creative processes with deadly metaphors: developers as “mass murderers” and “serial killers”. While during the creation of games, a whirlwind of ideas are produced and ideated, an almost equal amount of them are smashed, slashed and buried. Some of them are killed early and some are killed painfully late. Lucky ideas get a new life in other productions. A skilled developer is good at coming up with new ideas, utilising them in suitable design situations – and trained in letting them go. As developers get easily excited about new ideas and get attached to their darlings, this takes practice. However, in the end, the experience teaches how there will always be new ideas to fall in love with.

Merriam Webster Online Dictionary defines ‘plethora’ as “a very large amount or number: an amount that is much greater than what is necessary”. This is exactly what game ideas are about. Even though sometimes a game developer might run out of ideas, it is rare and easy to avoid. Instead, the typical situation is that there really is *much more than what is necessary*. And perhaps, what is necessary, in the end, is this excess. The more ideas there are the more flexible a developer can be. The more tools and tricks a developer has for tackling a design challenge, the more efficient they might become. In a way, ‘plethora’ might also depict the challenge of the creative process of a game developer. The creative process might be full of anxiety and sadness of a realisation of how not all of their game ideas come to life. To design a game is to make choices between ideas.

THIS CHAPTER IS PARTIALLY BASED ON THE FOLLOWING ARTICLES:

KULTIMA. A.. NIEMELÄ. J.. PAAVILAINEN. J. & SAARENPÄÄ. H. 2008. DESIGNING "GAME IDEA GENERATION" GAMES.

KULTIMA. A.. NIEMELÄ. J.. PAAVILAINEN. J. & SAARENPÄÄ. H. 2008. USER EXPERIENCES OF GAME IDEA GENERATION GAMES.

KULTIMA. A. 2010. THE ORGANIC NATURE OF GAME IDEATION: GAME IDEAS ARISE FROM SOLITUDE AND MATURE BY BOUNCING.

KULTIMA. A. & ALHA. K. 2010. "HOPEFULLY EVERYTHING I'M DOING HAS TO DO WITH INNOVATION". GAMES INDUSTRY PROFESSIONALS ON INNOVATION IN 2009.

KULTIMA. A. & ALHA. K. 2011. GAME DESIGN CONSTRAINT.

KULTIMA. A. & ALHA. K. 2011. USING THE VNA IDEATION GAME AT GLOBAL GAME JAM.

KULTIMA. A.. KÖÖNIKKÄ. J. & KARVINEN J. 2012. THE FOUR DIFFERENT INNOVATION PHILOSOPHIES GUIDING THE GAME DEVELOPMENT PROCESSES.

KULTIMA. A.. ALHA. K. & NUMMENMAA. T. 2016. DESIGN CONSTRAINTS IN GAME DESIGN. CASE: SURVIVAL MODE GAME JAM 2016.

KULTIMA. A. & KARVINEN. J. 2016. GENERATING. RECORDING. STORING. SHARING AND WORKING WITH GAME IDEAS – SNAPSHOT FROM THE 2010 MOBILE GAMES ERA.

KULTIMA. A. 2017. THE ROLE OF STIMULI IN GAME IDEA GENERATION.

KULTIMA. A. & ALHA. K. 2017. THE INTERTWINED ROLE OF PLAY AT GAME COMPANIES. AN EXAMINATION OF OFFICE PLAY STRATEGIES.

CHAPTER 5: GAME DESIGN PRACTICE IS NATURED AND NURTURED BY THE SURROUNDING ECOSYSTEM

Throughout my studies, I have met game developers around the world: Americans, British, Mexicans, Chileans, Japanese, Singaporeans, Indians, Chinese, Germans, French, Italians, Russians, Nordics and many more. Even in my home country of Finland, the social events are filled with game makers with different nationalities. Game companies around the globe are hiring talent from different countries and consequently the developers are travelling around to find jobs. Some do not have enough sustainability of the industry in their hometowns, some change jobs to build their portfolios, and some just want to see the world. Socially, the game industry is very international.

During this decade, the ways of communicating online has also improved. If one does not want to travel, the connections and communication can be done also online, but it is still important to meet face to face. Many international conferences are the places for the industry actors to connect. The conferences and other social events are run all over the world, but many of those that I have visited are based in Western countries: Game Developers Conference in San Francisco, United States; Gamescom in Cologne, Germany; and Nordic Game Conference in Malmö, Sweden (cf. Table 2). While bigger conferences form business of their own, many smaller events are run by volunteers of International Game Developers Association (IGDA) or local game developers' clubs and clusters organised by public sector actors. Conferences and game events work as *intermediaries* of the game industry (Parker, Whitson & Simon 2017).

As already discussed, my studies have been informed by the multiple discussions with practitioners as well as their presentations in these various game conferences and get-togethers. Much of the insight that I share in this book is based on those occasions. However, game conferences are not only for developers. They are places for the representatives of the larger ecosystem to meet, share and learn. Game educators and scholars are there to catch up on the latest trends and to form studio connections for their students. Technology, middleware, payment systems, analytics, advertising and legal service providers, among others, are also there to share their knowledge and work with their client relations. Publishers, investors as well as representatives of incubation programmes and public sector are also present. It is a mixture of different parties interested in games as business. Independent developers, students, hobbyists and creators who are less driven by money are there to share their passion for the art of making games. For the past few years, there has also been diversification in the events catering to various needs of the ecosystem, be it games as art, game jams, e-sports or events more focused on networking investors with the developers. Altogether, social events are important for the whole ecosystem of games industry to share knowledge and make connections and they have been important places for my observations.

Considering the short history of digital games, most of the leading game developers are self-taught in games. Educational programmes have been evolving throughout the decades, but the craft of game making still requires a lot of self-driven education to which networking opportunities are crucial. The game industry was born from other industries and from the hobby scenes varying slightly from one country to another and it continues to draw from these trajectories. Game developers bring in to the productions their own values and experiences as well as skills and connections. Development methodologies, tools and diverse teams might be strengthening the companies, but also the support of the surrounding ecosystem is growingly critical for the success of the businesses within the volatile industry. The game industry was formed and is growing as an interesting mixture of different backgrounds and contexts. The practice is affected by these trajectories in ways that deserve more academic interest. An important thing from the perspective *game design praxiology* is to acknowledge the relations of different value chains, actors and contexts and see how the practices are *natured and nurtured by the surrounding ecosystem*.

5.1 GLOBAL GAME INDUSTRY

During the past few decades, games have grown into a remarkable cultural phenomenon of modernity and digital entertainment has become a trivial part of the everyday of the modern human. The game industry ecosystem has grown and the digital games have become a multibillion dollar business (Kerr 2017). Since the first commercial computer game *Computer Space* and the success of the famous *Pong* in the 1970s, we have witnessed multiple product and service innovations, shifts in the landscape as well as developments in tools, services and technologies. Within over forty years of digital games, the domain of digital play has grown from an adolescent, male-oriented niche into an industry offering diverse experiences and playful activities serving different needs of wide audiences.

The global game industry has grown for the past two decades from a marginal player to a recognised economic actor. Already in 2007, the game industry brought in around $43 billion worldwide including hardware and software. The annual revenue of the game industry in the US was about $12.5 billion, surpassing the domestic box office revenues from the film industry, whereas in 2013 it had grown to $15.4 billion (Fullerton 2008; Siwek 2014). Globally, the game industry revenue is forecasted to grow from $108.9 billion in 2017 to $128.5 billion in 2020. In 2017, the top five countries in terms of their revenue share are China, the US, Japan, Germany and the UK (Newzoo 2017).

Along the same lines, the size of the profession has been growing around the globe. In the US, the number of the direct employees of game industry grew from little over 33,000 employees in 2009 to almost 43,000 in 2012 (Siwek 2014). Smaller countries have also been experiencing similar growth. For instance, in Finland, the number of employees in the game industry grew from 600 to 2,750 in twelve years (2004-2016). This reflects the economic growth of the Finnish game industry with a rise of yearly revenues from €40 million to €2.5 billion in 2004-2016 (Hiltunen et al. 2013; Hiltunen et al. 2017). Similar development in the employee numbers has been observed in Sweden with a growth from 1,203 employees in 2010 to 3,117 in 2014 (Kroon & Casén 2015).

Kerr (2017) notes that there is little independent data on the industry and that academia is reliant on data that has been collated by market research firms, such as Newzoo. Official statistics are challenging to compare as the game industry is placed as part of the media, communications, toys, software and information industries among others – depending on the definitions. Even after 40 years, it is difficult to identify the game industry numbers among other statistics. Kerr (2017) also holds a critical note on the comparisons between the game industry and movie industry: it makes an attractive statement to claim that games are bigger than movies, but it is often based on the comparison of box office sales in the US to the combinations of game software and hardware. However, Kerr (2017) also agrees that the industry has been growing at a faster rate compared to the other cultural industries.

The narrative of growth has been important for the formation of national support programmes, educational tracks, academic research projects, attracting investments to game companies as well as for the identities of the individuals within the ecosystem. Game industry is touted as an industry of passion referring to the personal commitment of the actors within the network and their interest towards the phenomenon of digital games – they were born as insiders. Many come with a background of playing games and devoting time to the various game communities. Games have not been taken as a serious business for a long time now. Broadened audiences and stories of success have gradually made digital games more widely accepted.

The stigma of computer games as marginal oddity or children's entertainment has been sticky, but the news pieces of economic success stories with millions in investments or tax income from the sector has helped to shape the public image of the industry towards the

better. Many have experienced some level of belittling on the seriousness of their career choices. In my discussions with game developers, and others within the community, I have heard the story of incredulous relatives over and over again, even though less during the last five years of my research. Relatives of the developers that have not been well read on the insights of the industry, or even on the game cultures, have been insisting that a career choice within games is something that you eventually grow out of. And we all have grown up, but we have not left games – instead games and the games industry have become a more mature and varied, larger ecosystem of actors and professions.

Each country has their own histories and background stories for the emergence of game industries, even though we come together (Figure 26) within the modern landscape of the game industry and the areal differences are much more hidden. Izushi and Aoyama (2006) explored the evolution of the video-game industry in three countries dominating the global markets early on: Japan, the US and the UK. Izushi and Aoyama (2006) noted how the cross-sectoral transfer of skills occurred differently depending on national contexts, such as the legitimacy and strength of pre-existing industries, the socioeconomic status of entrepreneurs or pioneer firms in an emerging industry, and the sociocultural cohesiveness between the pre-existing and emerging areas (Izushi & Aoyama 2006). Each country drew on a different set of creative resources, which resulted in a unique trajectory. Whereas Japan's video-game industry emerged out of corporate sponsorships in arcades, toys and consumer electronics industries and combined that with the comic book and animated-film sectors, the video-game industry in the US evolved from arcades and personal computers. In the UK, the video-game industry developed bottom-up, from culture of teen 'bedroom coders' (Izushi & Aoyama 2006). Kerr (2017) notes how within the global game industry, only few countries have been able to compete on the market share with the top countries. The top five companies of the game industry over the past ten years have been controlling about 30 per cent of the market. By 2016, only one publically listed company, Tencent from China, has emerged and remained in the top 10 affecting to the geographical diversity of the industry (Kerr 2017).

However, the global mixture within the social community of the game industry has been widening a lot for the past ten years. Market share studies do not concentrate on where the games are actually made at, only who gets the revenue. The diversity of the nationalities of the makers has been expanding and there is a growing interest also in the public sector and national programmes to nurture local game making communities. My study period between 2006 and 2016 has been impacted with the global growth of game developers' communities. This has been especially visible for me in the evolution of the game trade fairs and professional conferences. Every year, the events are getting bigger and more people are joining the industry from everywhere. For many smaller language areas, like that of Finland, the home markets are not big enough for sustaining vivid game development, forcing companies to be "born as international". Different organisations have been formed within these past ten years to support the trade missions of such companies and that has been visible on the floors of the business areas of game fairs.

FIGURE 26. DIFFERENT AREAL AND COUNTRY DELEGATIONS ON THE PAVILIONS OF THE GAMESCOM BUSINESS AREA IN 2016. IN A RUSH. I COMPILED THIS PHOTO COLLAGE DURING THE EVENT AND POSTED IT ON MY INSTAGRAM ONLY TO LATER REALISE THAT ONE OF THE PHOTOS WAS ACTUALLY A PROMOTED GAME.

Gamescom 2009 was my first game fair and there was a lot to learn. While the consumer side of the fair was familiar from the game press including the huge stands of the giants like Nintendo, PlayStation and Microsoft – the more interesting side of the industry came about on the business area. Next to the Nordic Game booth was, for instance, an Iranian game industry booth, representing a country that I would have never imagined fostering game development cultures. Their games deviated thematically from the rest of the show bringing their own cultural heritage, values and histories alive through game creations. Whereas in 2009 Iran stood out as one of the few national delegations, in 2012 the Gamescom business area was already crowded with several different country-specific booths, such as the UK, the Netherlands, South Korea and China. In 2016, the variety was larger yet again. Through digital distribution and other factors in the developments of the global game industry, the competition has become more global and networked – game companies are competing of the same markets as well as on the same talent pool, using same tools and precedents. Unfortunately, this can also mean that the diversity in the nationalities of the game makers as well as geography of the companies does not always translate into diversity in the products. A few years after 2009 Gamescom, the Iranian games also started to look similar to other games in Western markets as they pursued to cater to wider audiences.

To me, especially Gamescom has been a great place to see the growth and fluctuations of the ecosystem. While the consumer side has been showcasing the big trends for the core audiences of game hobbyists, the business area has been representing the different layers of game industry as a whole. For instance, at Gamescom 2012 micropayments were emerging as a business model and many payment system providers were there to present their services. Many innovative gaming technologies, also such that did not eventually spread, has been presented at Gamescom. You can see the successes and failures in retrospective. The consumer side has also been a great reminder of the changes. Seeing big installations and the eager audiences of *League of Legends* tournaments or the grandeur booths of Wargaming, among others, have forced me to pay attention to the phenomena that was not on my radar otherwise. Indies have also grown their presence at conferences and fairs. Whereas Gamescom 2009 was dominated by the big actors only, in 2016 the large area of the Indie Arena Booth was showcasing multiple interesting projects from young creators and companies pursuing more innovative and artistic products. The growth of the more artistic game communities has been important for the industry on many levels: new ideas and visual styles explored at the indie communities have influenced the bigger productions, but small inventive games might have also helped the creators to reconnect them with their lost passion towards game design. Some indie games become phenomena of their own mixing the borders of these two; it is a field that many actors of the industry closely follow. For instance, at Game Developers Conference, the Independent Games Summit has grown into one of the most popular session tracks.

The modern game industry ecosystem is growing into several different directions. Big productions have different production logics than smaller ones; companies have different target groups and motivations to create games. The value network has become more

diverse: there are different service providers, technologies, tools, support systems and educational organisations catering for the game development. The game industry is still relatively new compared to other cultural industries and our understanding of it is growing while it evolves and goes through different shifts. However, the game industry did not emerge from the void (Jones 2001 in Izushi & Aoyama 2006): it has drawn skills and knowledge from other industries as well as created its own. Game industry utilise different kinds of spaces to network and share knowledge and business interests globally and these spaces are also places for the cues of the future developments. As we can claim that the "genetic" code of the different trajectories are visible in the current development cultures (see Izushi & Aoyama 2006; Tyni & Sotamaa 2014), there are developments that will be the building blocks of the future.

5.2 THE PHENOMENON OF GAME JAMS

One of the biggest developments for my study period between 2006 and 2016 has been the phenomenon of game jams. Game jams have impacted the formation of national game clusters, sparked new start-ups, enhanced game education as well as pushed certain development philosophies. The impact of game jams for the industry might not yet be widely acknowledged, but it is heard within the shared stories of developers around the world. Some companies have found their best employees at game jams; they might have started their successful game as a jam prototype, or even created game jams where their players can participate to their creative processes. Others might express how their first company was formed at a game jam, or how they created their first game, learned new technologies and tools at a game jam or just simply gained more confidence to pursue a career in games after participating in a game jam. I have heard these stories from Europe, the Americas and Asia alike.

Some stories are about larger effects. At the GDC 2014 Global Game Jam roundtable, there was a representative of Global Game Jam Chile explained the big role of game jams for their national game developers' community: "Before GGJ there was no game industry in Chile. Now there is". Even though the premise of Global Game Jam has been about experimentation and innovation, the main role of it has been in facilitating a large global community and an inclusive movement. At 2015 ICGJ, the first International Conference for Game Jams, Hackathons and Game Creation Events, the founder of GGJ, Gorm Lai, emphasised how the most important role of Global Game Jam has been "to create spaces". Game jams are important for creators to, not only to share knowledge, but to come together and create out of their shared passion.

The growth of the jam scene has been exponential for the past ten years. Between the first Indie Game Jam in 2002 and the Global Game Jam hitting over 36,000 participants in 2017 (Global Game Jam 2017), a huge number of different kinds of large and small, global and local game jams have been created and participated. There are several game jams running at the same time, year-round. Forerunners like Ludum Dare, Nordic Game Jam, The Toronto Game Jam (T.O. Jam) as well as Global Game Jam and Indie Game Jam

alike have been an active inspiration for a broad spectrum of game creation events. These events have the potential to diversify the industry, but also affect the game development practices of the future in many ways.

Global Game Jam (GGJ) is one of the best-known instances of the jam format. It is a widely spread event and it has brought game developers together around the world. The growth of GGJ has been phenomenal. The first GGJ was arranged in 2009 with around 1,600 participants in 23 countries. Already in January 2012, GGJ had grown into the biggest game development event in the world earning a Guinness World Record with 242 locations in 47 countries totalling in 2,000 games made by over 10,000 participants (Global Game Jam 2013). This record was already broken in 2013 with over 16,000 participants and the growth has been continuing at a similar pace: in 2017 GGJ had over 36,000 participants, 702 jam sites, 95 countries and over 7,000 games (Global Game Jam 2017). At first, the event was heavily dominated by the US and European participants, but later the West European sites and Asian sites have been growing in number (Flowler et al. 2013). For some countries, the reach is significant compared to the size of the local game industry. In Finland, for instance, 927 jammers took part in GGJ 2016 (Alha 2016). If the participants would all be employed by the industry, this would add up to 34% of the 2,750 employee industry (cf. Hiltunen et al. 2017).

The variety of different jam events is interesting. Game jams have been run in odd locations, such as castles, planes, buses and trams, or even on the 52-hour train journey from Chicago to San Francisco. They have been set in different time frames, from the extreme challenge of 0h Game Jam (1 h) to the laid-back VR Slow Jam. Game jams have been built around varying creative stimuli: for instance, Global Game Jam with themes of sentences, pictures, words or sounds and Molyjam with a Twitter account of Peter Molydeux (a reference to Peter Molyneux) as a starting point for the jam games. Game jams have also been utilised as internal creativity boosts for game companies, to the extent of making a game jam a combination of a Kickstarter campaign and a public show, such as Amnesia Fortnight by Double Fine. Game jams have been trying to overcome sensitive issues with specific design topics, such as The Boob Jam and they have been set for solving scientific problems like quantum dilemmas in Quantum Game Jam or for carrying societal agenda, such as in Fukushima Game Jam. The jams have been widely utilised as part of the educational programmes and globally shared entry narratives for aspiring game developers as well as social spaces for indie game makers.

Many participants, *superjammers*, take part in several game jams during a year and, for some, being a part of the communities of such jams as Nordic Game Jam, Exile Jam, No More Sweden and their equivalents around the globe is part of their lifestyle. Being a source of intense experiences and a springboard for unconventional games (such as *Surgeon Simulator, Johan Sebastian Joust, Goat Simulator, Dark Room Sex Game* **and** *B.U.T.T.O.N.* to name only a few), game jams have been attracting the attention of game media and gamers as well. The rich nature of the phenomenon and the wide promise of its benefits have secured the success of the format in the contemporary game culture and

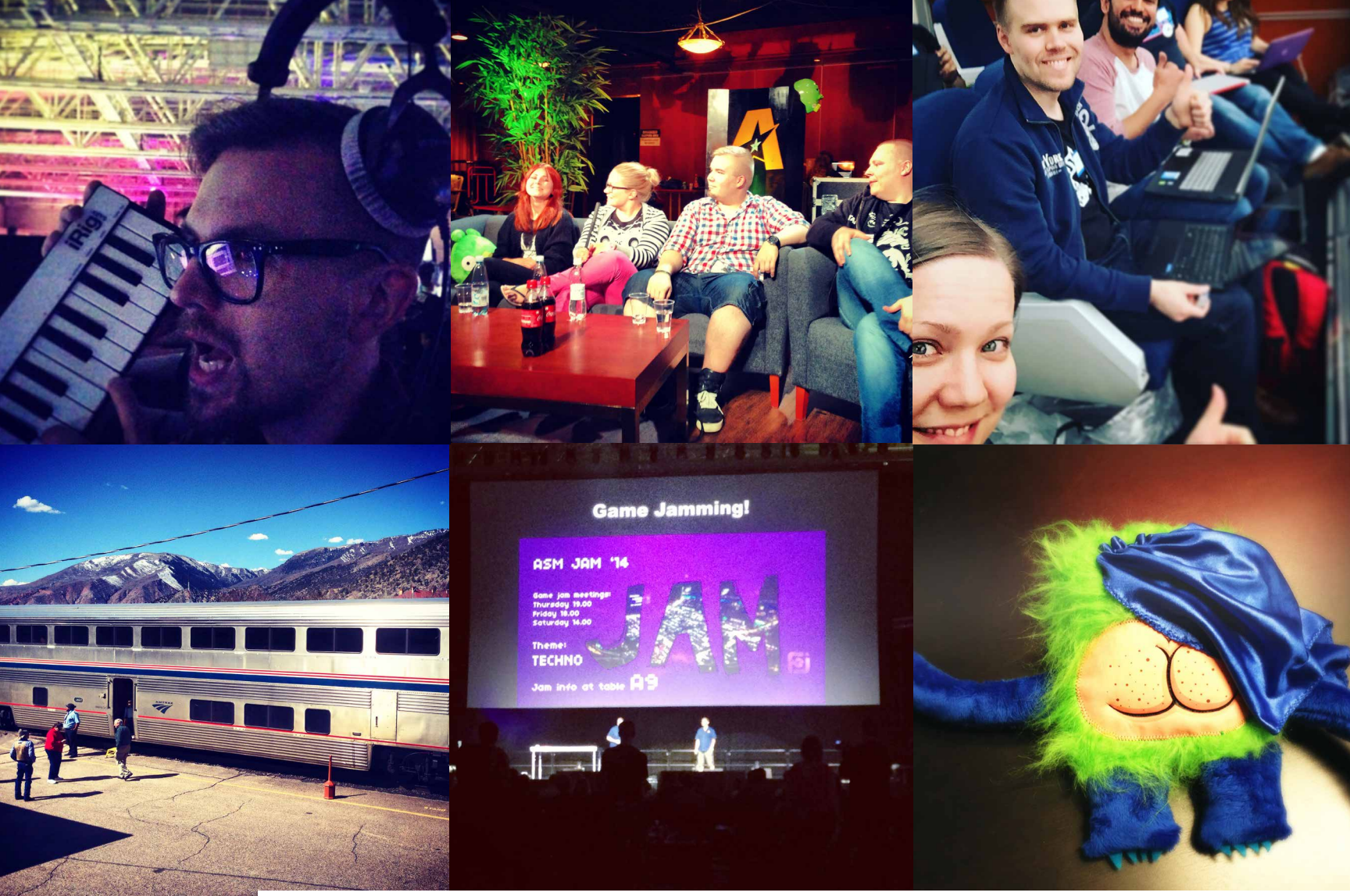


FIGURE 27. MOMENTS FROM THE GAME JAMS THAT I HAVE PARTICIPATED IN AS PART OF A DEVELOPMENT TEAM.

FIGURE 28. MOMENTS FROM THE GAME JAMS I HAVE ORGANISED.

industry. It is a phenomenon of its own that already has an impact to the future of game ecosystems – much of this is not yet to be acknowledged within the industry.

I have been lucky enough to be part of creating the jamming scene (Figures 27 & 28). Originally, my interests were purely academic seeing game jams as an interesting method mixing quick prototyping and brainstorming principles. We organised the first Global Game Jam at Tampere in 2010 to run a small scale ideation experiment, but ended up coming back every year finally founding an official non-profit organisation in 2013 to support the culture of jamming in Finland. I have been also part of the global community of Global Game Jam as a member and the lead of the Theme Committee and regional organiser of Finland. As an insider, it has been interesting to see game jams spreading from the grassroots of hobbyists to the educational institutions' and company cultures. Jams do not only configure narratives of the current developers in Finland, but also birth stories of companies and learning experiences as well as stories of how game products were conceptualised in jams come up in discussions with developers from elsewhere – be it the US, Denmark, China, Japan or any other countries I have had the pleasure to visit.

I am not the only scholar who has seen game jams as a great opportunity to advance their research interests. The tight community of Global Game Jam organisers, consisting largely of educators and researchers in games, have been meeting annually at Game Developers Conference since 2011. For the past few years, game scholars have also been sharing their research at an academic conference devoted to the study of game jams. International Conference on Game Jams, Hackathons and Game Creation Events (ICGJ) is held annually preceding the big week of GDC. As an evolving area of academic interest, game jams have been researched from different angles and used as a platform for varying studies (Fowler et al. 2013; Fowler et al. 2013; Kultima 2015b). Particular research interests and utilisation strategies vary and include themes such as prototyping practices (Musil et al. 2010), inspiration and ideation (Ho et al. 2014; Kultima & Alha 2011c), and utilising game jams to educate developers on specific issues (Scott & Ghinea 2013). The size and reach of GGJ has also provided unique opportunities in comparing the cultural differences of game development (Yamane 2013; Shin et al. 2012), community forming (Reng et al. 2013) and the connection between game jam participation and formal academic performance in game education (Preston et al. 2012).

Framing game jams as "compressed development processes" (Zook & Riedl 2013) is one of the key reasons for the growing academic interest in the format. Being able to go through different steps of game development in a short period of time makes game jams an attractive platform for research into game development and design. Fowler, Khosmood and Arya (2013a) highlight such potential by naming Global Game Jam (GGJ) "a new kind of research platform" and further setting a promise of it providing "a unique opportunity for studying different professional, educational and cultural aspects of computer games". Supporting the claim of potential, game jams have also been touted as "a design research method, situated in the research-through-design tradition" (Deen et al. 2014). Particular research interests and utilisation strategies vary: For instance, Musil et al. (2010)

investigated game jams as a general format of prototyping to gain a better understanding on prototyping practices in software development processes, while Scott and Ghinea (2013) were interested in game jams as an opportunity for educating game makers on the issues of accessibility in games.

It has been popular to tout game jams as a method for innovation and experimentation. Early on, in 2006, Fullerton et al. (2006) noted how, despite the participants' interest towards innovation, very few jam games had proved successful in such an endeavour. This realisation further made them deem game jams as a tool for "small innovative 'flashes' that would need a secondary level of longer term research to foster and iterate on these flash ideas." I have been sceptical also on the promise of game jams as an innovation tool, but mostly this has to do with the level of the experience of the participants as well as their personal motivations. Young developers and students with less experience in the design solutions and conventions are less equipped to successfully execute new ideas – in a very short time period. The participants also might be more motivated to make their first portfolio piece or just enjoy the pleasure of creation without the pressure of creating something experimental. Whether or not game jams actually function as a tool for innovation, jams have found their relevance in connection to the game industry. In 2013, Turner, Thomas and Owen (2013) described game jams as "an important rite of passage and baptism event for students looking to enter the industry (…)", adding that "something very unique happens within a game jam and that this 'something special' is an important aspect of the potential future life of a vibrant games industry." Reng Schoenau-Fog and Kofoed (2013) also emphasise the role of game jams as social events. Studying the Nordic Game Jam 2013, they concluded that while the interest in developing the game itself plays a large role, it is mixed with an interest in socialising with other game developers and being part of the community. In 2017, game industry is intertwined with game jam cultures as increasingly more game companies utilise jamming as part of their development cultures.

The format of game jams varies and there is no collated view on the wide and evolving cultures within them. Drawing from my personal experience and the academic literature, I have pinpointed couple of general features of game jams to which we can also derive hypotheses on their impact to development cultures in the future (see Kultima 2015b). To me, *a game jam is an accelerated opportunistic game creation event where a game is created in a relatively short time frame exploring given design constraint(s) and end results are shared publically* (Kultima 2015b).

In a game jam, the games are created on the spot and often from scratch. It is a challenge of creating a game in one intense time period. The pressure of a strict deadline can create an additional motivation for cutting corners and lowering expectations similar to that of brainstorming. Design constraints (such as themes, technology, genres etc.) provide fixed starting points for the participants to go directly to the prototyping: a game jam is accelerated through these constraints. Outcome is important for the jammers, but often opportunistic. One might come to a game jam due to the promise of new ideas, winning prizes or adding games to their portfolios, but end up learning new skills and technologies

as well as creating connections and socialising with future co-workers. Returning participants might be more open to all potential rewards that the event might bring. The games are usually shared among the other participants or made public at the end of the jam – no matter how the game turns out to be. Sharing is vital for the creative game development and learning to not be afraid of failing; it makes the process more social and provides points of reflection as well as recognition.

Even though there are certain benefits of game jams as research platform (see Kultima et al. 2015), it is important to note that game jams are a phenomenon of its own. The jams have become an important stepping stone for future game makers, a part of the development cultures of game companies and it will affect the ways that games are created in the future.

5.3 DESIGN PHILOSOPHIES WITHIN THE ECOSYSTEM

It is important to note that the developer's own design philosophies, values and belief systems are not the only ones that affect the practices. This industry is networked in various ways and the information is shared within the community – informally and formally. Depending on the lessons learned, available development tools, middle-ware, services as well as hobby cultures and support structures – the practices are formed and reinforced within the industry to best suit the current trends and fluctuations. The different actors on the network, not only educators, of the larger ecosystem of game industry affect the way games are created as well as what kind of design philosophies are adapted.

The differences in design thinking have not been discussed widely in games. Through the shifts and broadening of the industry, the pluralism has only now become more visible. Design books might give an impression of neutral theories, but all have underlying premises for games and game development as they are written by individual practitioners. What we have learned for the past decade is that games are and can be many, and the landscape has been changing, making an opportunistic attitude central for success. Creating interactive experiences calls for iterative development filled with testing and tweaking. Learning through creating and learning together has been vital for the game makers. Each has ideas for the future, the excess of it bringing more flexibility to the process. Game design is discussed in great detail, but it is not usually reflected with more profound design theories. We do not have an understanding of how game development is seen as design across the actors.

To have a small glimpse of this, I want to highlight the small study I conducted on the Global Game Jam theme committee (Kultima 2015a). I examined the different mindsets that the committee members had for design constraints, revealing the underlying views on design. Similar to design values, such views might not be well explicated by the actors of the ecosystem and they might be also something that the individuals have not given much thought. Also these conceptions came visible through differences in opinions as we were exploring the game jam theme as a central element for a global game creation event. This was reflected in the several layers of the whole discussion.

As a theoretical framework, I used a categorisation created by Dorst and Dijkhuis (1995). They compared two fundamentally different paradigms for explaining design activity: Herbert Simon's (1992) and Donald Schön's (1983). Even though Simon's view on design as *rational problem solving* and Schön's "*reflection-in-action*" models somewhat oppose each other, the conclusion of Dorst and Dijkhuis (1995) is that these models function in explaining different situations in design. Describing design as a rational problem-solving process is more natural in design situations with clear-cut problems and design strategies to solve them. Describing design as a process of reflection-in-action works better in describing the conceptual stage of the design process, where there are no standard strategies to follow and there is more experimentation in finding the solutions. Within the framework of rational problem solving, the designer is an information processer, whereas the view of reflection in action depicts her as a person constructing their own reality. The design problem is correspondingly ill-defined and unstructured or essentially unique. The process of proceeding with the design challenge is either through a rational search process or reflective conversation, and the model for the knowledge processes is closer to science or art (Dorst & Dijkhuis 1995).

The underlying differences in the Global Game Jam 2012 Theme Committee discussions echoed the differences between design paradigms similar to Simon and Schön (cf. Simon 1992; Schön 1983). Opinions on whether Global Game Jam as an event was primarily about game design as problem-solving or game design as exploration seemed to affect the way the members of the committee responded to the theme suggestions. These views consequently affected the way that they thought this event as a particular game development should be framed. Whether the design situation of a game jam was framed as a *design problem* or as *reflection-in-action*, they preferred one theme over another.

The discussions of the committee were not visible to the wider community of jam organiser and jammers. Even though it was academically very interesting, the only thing that mattered in the end was the theme that we proposed for the event. Moreover, our influence was small on a global scale of the jam. I argue that the local organisers and community leaders have a much greater impact on the way that their events are framed as design. The combinations of guidance, free-form activity, the way that the event is set by the local organisers and further interpreted and devised by the jammers vary. Allegedly, the views of the organisers impact the participants of the jams. Global Game Jam affords an interesting arena for the future explorations of such differences, which might eventually echo to the local and national game development cultures.

5.4 NATURE AND NURTURE: HISTORY OF THE FUTURE IN THE MAKING

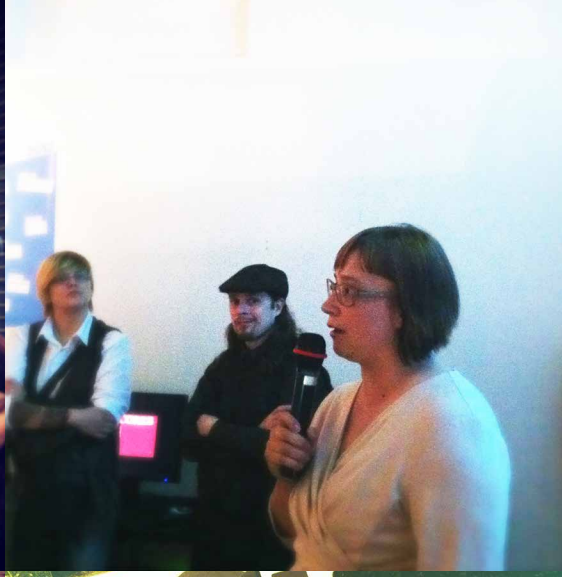
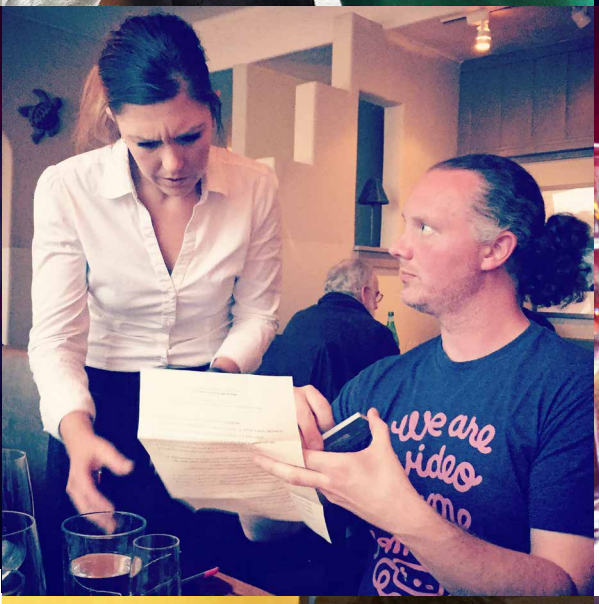
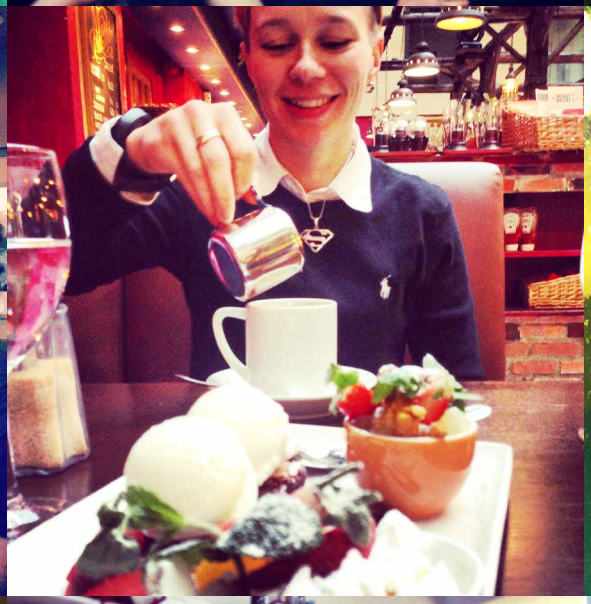
In 2014, we decided to create a special game jam as a form of a publicity stunt to raise the awareness of game jams and game development in Finland. Around 20 game developers were invited to jam on a bus circling the southern Finland Global Game Jam cities. In addition to being an interesting experiment per se, it was an eye-opening experience to me as an industry mediator and a game researcher. Even though we already knew that some jams were organised in different ways, seeing six different jamming sites in one weekend illuminated the differences in the developmental cultures, atmosphere, organising styles and settings. Furthermore, by participating in various international game jams and talking to the organisers of game development events and education, I started to think about the impact of these differences on the future practices – in game jams and in commercial game development practices. This is a topic that I wish to explore more in the future.

As already discussed before, game jams are interesting places for studying design processes and various issues within developmental settings. Game jams provide platforms of reflection also for game design praxiology. Firstly, it is a phenomenon of its own and, secondly, it is intertwined with the development of global game development cultures. Game jams provide interesting points of departure for searching more of the underlying design philosophies now and in the future. If in the past, the development cultures did not come from void, like Izushi & Aoyama (2006) noted, they certainly do not rest on a clean page now either. The role of the different actors coming in and out from the ecosystem is important, but also different actors within the ecosystem have an impact on the practice. Game jam cultures have an as large, if not an even larger, impact globally as the slowly developing formal game education regarding the game design practices.

I have no survey data on the direct effects of game jams on the development cultures around the globe, but based on my field observations for the past ten years in various game jams in Finland and abroad, I am confident enough to highlight some issues. The size of the phenomenon is big enough to impact the future narratives of the game development histories. Game jam cultures are impacting practices by creating and nurturing the following design philosophies: 1) prototyping first, 2) collaborative creativity, 3) learning by doing within a community and 4) ideation through experimentation. Game jams impose certain practices for the game developers: they start working on a tangible prototype very fast in the process instead of tossing and turning with abstract and verbal ideation for too long. Game jams promote a team oriented approach to creativity and make the creation experience social from the get go. Participants learn by doing and share their lessons with their peers. They also learn how interesting ideas might come within another game project and might get life later in other projects. These developments seem to be very well in line with some discussions on the modern game development philosophies, but at the same time they also reinforce these exact lessons within the practices. Even though the more experienced practitioners also go to game jams, a whole generation of game developers, the *jam natives*, are shaped as creators within the social frame of these events.

FIGURE 29. MOMENTS WITH GAME EDUCATORS. RESEARCHERS. COMMUNITY BUILDERS AND OTHER INDUSTRY MEDIATORS AROUND THE GLOBE.



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That being said, game jams also create development cultures of their own. Many indie developers travel from country to country to meet other creators and work together in smaller or longer projects. These *jam nomads* might take a very different approach to game development than what is talked about in game design books or industry presentations. Overall, the experiences and journeys with game design vary within the game industry – the phenomenon of game jams widens this further.

In 2017, the game industry ecosystem is much larger than ten years ago. The paths, appreciations, choices and experiences are as varied as is the multitude of actors. The roles are also more varied and there are more professions involved in the production processes. During this ten-year period, the phenomenon of game making has diversified and grown. At the same time, the ecosystem has also become more established and diverse (see some moments from my studies with the mediators in Figure 29): education, research and funding systems all acknowledge game creation in one way or another depending on the countries. Furthermore, we can see the ecosystem casting nets even further, towards policymakers, youth workers and the hobby scene, which all play their own role in the future of game making. All these layers influence practice indirectly through the tools and processes that they offer or funding and support that they give. It is not a shared and systematic goal in most regards, but we should have more understanding of the underlying views of the actors within this network. What kind of design thinking is present in each layer of the way? How well do they understand the realities and variety of practice and how do they think that their own effort impacts the future? We can treat game makers as part of the global industry (cf. Kerr 2017), but we also need to see them as part of a global hobby scene and members of other larger game and non-game communities. It is safe to say that we do not run out of research ideas in a near future.

We need to understand the design philosophies of the developers, but also the assumptions of game design as practice by other actors largely – how and from which design implications game development is taught, supported and nurtured is an important issue for the future game design praxiology. Moreover, we scholars need to work on a better framing of these enquiries. In my opinion, at least these five theses should be noted within the future game design praxiology: 1) timely and particular nature of game design, 2) plurality of design values, 3) opportunism in the design process, 4) the design process as a plethora of ideas and finally, 5) a larger ecosystem of actors as enforcers of current practices and as a driving force of change within the field.

THIS CHAPTER IS PARTIALLY BASED ON THE FOLLOWING ARTICLES:
KULTIMA, A. 2015. DEFINING GAME JAM.
KULTIMA, A. 2015. AN AUTOPSY OF THE GLOBAL GAME JAM 2012 THEME COMMITTEE DISCUSSION: DECIDING ON OUROBOROS.

CHAPTER X: GAME DESIGN PRAXIOLOGY

My study has concentrated on understanding the creative realities of game developers. The original focus was on ideation, but the role of the ideas and creativity of the developers should be placed in the larger context of game development. My perspective on the issue has been to look at the topic through the developers' own rationalisations and sensemaking by utilising an ethnographic approach. Through discussions, industry presentations and sub-studies spanning over ten years, I have summarised seminal theses based on my exploratory research.

I have chosen to utilise Cross's (2007) taxonomy of design research to label my work as *game design praxiology* (hence also using the written form of *praxiology* instead of *praxeology*, as this is the form that Cross is using). Cross (2007) notes how design knowledge resides in *products, people* **and** *processes*. The processes of the designers are those tactics and strategies, if not full methodologies that guide and aid the designer in their work. Studying people that conduct design emphasises the designing as an inherently human activity. The products themselves hold information on design as examples of how designed artefacts can or should be. Based on this, Cross divides design research into the categories of *design phenomenology, design epistemology* **and** *design praxiology*. To him, design research is a combination of these three in search for design knowledge.

Cross's typology has helped me to organise my argument of the ontological narrowness of *game studies* overemphasising the design phenomenology and neglecting the relevance of the creator. During my study period, digital games have been established as a form of

mass entertainment penetrating the everyday lives of people of all ages. The economic growth of the game industry has helped to legitimise the study of the phenomenon of games and investments in the education of the next generations of game experts. At the same time, the industry has grown into a network of more specific roles and agencies, subcultures have been born and the diversity has begun to grow. We know about games a lot, but there is still more to explore – it is a moving phenomenon.

My *game design praxiology* is not an exact imitation of Cross's taxonomy. I have taken my personal interpretation of it and adapted it to fit game research. *Game design research* should be divided into at least two categories, where *game design phenomenology* and *game design praxiology* form an interactive whole. The former would include the analysis of the artefacts, but also the studies of the players and cultures that form around the experiences within the interaction of these two. Thus, game design phenomenology treats *games as played*. Game design praxiology, then again, includes everything that goes into the practice of creating games, the special nature of development processes and sensemaking of the creators as well as the context of the development cultures treating *games as created*. Both of these would then be seen as overlapping.

Modern game research is a multidisciplinary field. Games provide opportunities to many scholars and can cater to a wide variety of academic interests. Games can be researched through different theoretical frames with varying ontologies and these enquiries do not have to be informed by my taxonomy in order to become relevant within it. However, as long as game making is not part of the basic education in the same way as writing or drawing, games are in danger of remaining misunderstood as a wide and vibrant form of art and practice. Where game design phenomenology can provide an understanding of the experiences that different players have with the artefacts and each other, game design praxiology sheds light into the experiences that creators go through in making these possible. Games are designed by people and this context of creation has its own nature.

Game design is timely and particular; it is a changing field for the designers and by the designers. No matter how similar one game is to another, they are always different. Games are designed for different purposes by different people and there is not a single value that all game design could be reduced to. Game design is value pluralistic.

Game design processes are opportunistic. The development of games is iterative, and managing the process requires an understanding of the needed flexibilities. A vision of a game gets its full form only through the development process where multiple decisions shape the end result and sometimes goes into unexpected directions. The process is filled with an excess of ideas, this plethora is a blessing and a burden. There simply is not enough time and resources to explore all the potential directions that a game could take. A passionate developer might feel sad for not being able to engage in all these directions, but alternative ideas are always needed in the iterative processes of making games.

Ecosystems around the game makers have impacted, and will continue to impact the practices. Anybody trying to form an overall picture of game making should understand the networks that support and enforce philosophies aiding and guiding the creators both directly and indirectly. These include not only networks of commerce, but also hobby and art scenes as well as the larger contexts of the creators.

Game design is timely and particular because games are design. Game design is value pluralistic because games are design. The game design process is opportunistic because games are design. Game design is a plethora of ideas because games are design. Game design is nurtured and natured by the surrounding ecosystem because games are design. Games are designed by people and we should take more interest in understanding *games as created*.

I have seen over the course of the ten years of my studies that the number of game researchers interested in the topic of game practice has been steadily rising. Young scholars entering the field of game research are getting inspired by the success stories of the industry and they want to understand the practices behind their favourite games. This trend gives me great hope for the future of game research and game design praxiology. It will be exciting to follow what will be discovered and developed in the future. At best, my study offers a treasure map for others as well as myself wherein my current findings mark the spots for future gems to be found.

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