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USING EDUCATIONAL GAMES TO TEACH PERSONAL ACCOUNTABILITY IN A CORPORATE CONTEXT

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Abstract

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Purpose: The purpose of this project is to design and evaluate two educational games on personal accountability - one digital and one non-digital. The games are to be used as part of a personal accountability training in an international manufacturing company. The aim is to compare the digital and the non-digital game as well as to evaluate the effectiveness of educational games for teaching organizational culture related concepts such as personal accountability in a corporate context.

Theory: The digital game was designed with a behaviourism learning theory in mind, whereas the non-digital was built based on cognitivist and socio-cultural principles.

Method: This project is conducted as a design experiment consisting of two phases – testing and implementation. Iterative design principles were used to design the games. The data collection was conducted in the form of observation, survey and interviews. The interview results were subjected to thematic analysis.

Results: Both the digital game and the card game were well received by the personal accountability training participants. Stronger preference for the card game was expressed based on the higher levels of self-reported engagement and learning. We found that the participants didn't have a clear preference for either digital or non-digital games. It became evident that both formats have their merit depending on the context and the educational goals.

When it comes to the effectiveness of the games the digital game worked well as an interactive introductory exercise, but it failed to meet the high expectations related with games to the fullest. The card game on the other hand was described as very effective in facilitating engagement and learning. The findings show strong evidence for the beneficial effect of the mechanics based on cognitive and socio-cultural principles in the context of the evaluated training. Overcoming realistic, relevant scenarios as part of a game was described by the participants as an engaging and enriching experience.

Compared to lectures and speeches, games were preferred by the participants when it comes to teaching organizational values. There was some evidence for resistance towards lectures and speeches, where such resistance was not observed when discussing the effectiveness of games for teaching organizational values. From our findings, it appears that games could be used as an alternative presentational ritual to speeches and lectures that causes less resistance.

Foreword

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Introduction

1.The Story

For the past five years I have extensively worked with improving business processes and introducing new IT solutions at a multinational manufacturing company. There are plenty of obstacles one faces when performing this sort of work – identifying the root cause problem, translating user needs into specific requirements, accounting for technical restrictions to name a few. However, one aspect of the process developer role has proven particularly challenging, time and time again – change management. It is very hard to introduce changes – both in the way people work and the technology they use (Kotter, 2007; Orlikowski and Gash, 1994). How to steer change to a successful outcome? How to align conflicting forces while trying to improve the business? How to overcome the inherent resistance to change? Those are a few of the questions I have brought with me when I first started the master program in IT & Learning. Maybe preparing business for change by training and teaching employees in a better way would help us improve our change management efforts. Furthermore, can we create a better climate for change by teaching about core values and behaviours part of the organizational culture? In that way we would go beyond specific change management interventions and focus at the root of corporate behaviour, namely organizational culture (Kotter and Heskett, 1992).

My personal interest into games has led to a fascination with gamification and educational games as powerful mediums for expression and communication. What if we could tap into the power of games to create engaging and meaningful experiences in a business context (Werbach and Hunter, 2012)? In particular, we could use gamification or games to address change management.

My enthusiasm was strong and in a way bordering a strictly technologically deterministic departure point (Oliver, 2011). I was exclusively focused on using digital technology for providing better educational content that in turn would support our change management initiatives. It was not long before I realized that such a one sided approach has a number of weaknesses that have been already widely criticized. First, using game elements does not guarantee the benefits that we associate with a game (Bogost, 2011a). Second, video games do not necessarily facilitate better learning (Linderoth, 2012). Third, better learning technology does not automatically translate into better teaching and learning practices (Player-Koro, 2012).

To address the above criticism, we propose a balanced approach that aims to utilize the strengths of both digital and non-digital games (Linderoth, 2014). Furthermore, we reduce the scope of games when it comes to learning objectives by situating them as a part of a larger curriculum. In that way we try to use games for what they do best – drill, create a memorable experience, represent a system (Linderoth, 2014) and convey a message through procedural rhetoric (Bogost, 2008), instead of trying to do everything when it comes to teaching by using games. We by no means take the stance that games are superior to other pedagogical tools. However, we try to improve the impact of a training by diversifying the teaching tools in order to provide additional perspectives on the thought material to the trainees and strengthen the impact of the core message of the training.

2. Personal Accountability

The idea to use games to extend our training methods at work was met with great enthusiasm by management. The timing for such a project was also good, since training was on the corporate agenda – a new learning management system was to be introduced across the company and division-wide training on personal accountability was being launched. Therefore, personal accountability was the exact topic that the organization selected as particularly suitable for our educational games project.

According to Harmon and Mayer (1986) cited by Sinclair (1995) personal accountability is "fidelity to personal conscience in basic values such as respect for human dignity and acting in a manner that accepts responsibility for affecting the lives of others" (p.230). Sinclair (1995) suggests that the power of personal accountability stems from the fact that it relies on psychological rather than external controls.

In the context of the company personal accountability is an area in which excellence can be pursued, based on a solid foundation. Training in personal accountability had been carried out for years in parts of the organization and now management has decided to extend those training efforts to a wider corporate audience. Picking an area for this project in which the organization had prior experience would help us build upon an already existing curriculum, that can support relatively novel training methods for the company such as educational games.

Furthermore, choosing an area of training which is very closely related to organizational culture building allows us to approach change management from a corporate values perspective. A key element in successful change management is empowering the users by removing obstacles for adopting the change (Kotter, 2007) – be it organizational, physical or psychological obstacles. One such obstacle common for most change initiatives can be seen in blame games, victimization, victim mentality and passiveness

(Miller, 2004). Those barriers to change can be addressed by anchoring personal accountability principles in the core values fundamental to an organizational culture. In that way, we aim at facilitating an organizational culture focused on problem solving and leadership on all levels of the organization. Such a culture would provide a climate for implementation (Klein and Sorra, 1996) more favorable to change.

3. The Project

This project is carried out as a design experiment[1] (Collins et all. 2004) by building a digital and a non-digital game and introducing them into the established personal accountability training routines at the company. The goal is to evaluate the suitability of the combined educational game approach for teaching content that promotes organizational values and affects organizational culture. The evaluation is based on observation, a short questionnaire and semi-structured interviews.

The three research questions we address with our evaluation are the following:

- How are our digital and non-digital games perceived by organizational culture training participants?
- Are our games an effective tool for teaching organizational values and attitudes?
- Are our games an effective presentational ritual that overcomes resistance to change compared to lectures and speeches?

The digital educational game aims at introducing basic examples of personal accountability behaviour. Its purpose is to capture the attention of the training audience and to establish a common understanding of the training topic prior to the classroom training.

The card educational game aims at presenting the training participants with more elaborate scenarios in which personal accountability is put to the test. Its purpose is to establish a mental model for personal accountable behaviour and its consequences through the interaction with the game and other players (Kriz, 2003). The game is also used as a trigger for a follow-up in class discussion on personal accountability.

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[1] More about the methodology employed in this project can be found in the methodology subsection of the project description.

Why are we doing this project?

This project is seen by management as an opportunity to try out interactive innovative methods of knowledge communication and learning. With this project we test the viability of a combined educational game approach, that if successful could be applied to other training initiatives within the company.

With this project we try to address the following needs:

1.	Communicate information more efficiently

2.	Teach new skills more rapidly to a large amount of people at a low cost

3.	Adapt to an industry landscape dominated by constant change brought by digitalization

4.	Form a productive organizational culture beneficial to all stakeholders involved (Kotter and Heskett, 1992)

Literature Review

This literature review aims to provide the reader with relevant literature that has served as the foundation of our project. First, we focus on key research in educational games, as our primary subject of interest. Then we outline how educational games are related to learning theory. Furthermore, we present design concepts relevant to developing educational games. Finally, we focus on the role of educational games in a corporate context and briefly outline personal accountability and organizational culture research.

1. Game-Based Learning

1.1 History and Scope

Educational games and game-based learning are not a new phenomenon (Coleman, 1971). Part of the impression that educational games have been used to teach only recently might be arising from associating game-based learning primarily with video games (Sharp, 2011). In practice, however non-digital educational games, such as board and card games have been around for a long time and in many situations, are better suited to a classroom format of teaching (Linderoth, 2014).

Hainey et al. (2011) position game-based learning at the intersection between games, simulations and serious games, whereas serious games are the overarching group to which educational games belong (Sawyer and Smith, 2008). However, the term serious game as originally proposed by Abt (1970), encompasses primarily games with an educational purpose, rather than an entertainment one. Only later the scope of serious games has been expanded to cover areas such as research, policy making and business (Susi et al., 2007; Sawyer and Smith, 2008).

Furthermore, the "edutainment" movement of the 1990s tried to widely introduce the use of video games as vehicles for game-based learning, however it didn't succeed due to the low quality of the games (Michael and Chen, 2005). A major reason for this failure could be also the fact that the edutainment movement was developing educational games not considering the legacy of non-digital games (Linderoth, 2014).

1.2   The Promise of Educational Games

Using video games for teaching has been widely suggested to hold the promise of engagement, increased motivation and a wide array of additional properties that support superior learning content facilitation (Prensky, 2001; Gee, 2003). McClarty et al. (2012) have identified key claims on the advantages of digital games usage in education, namely – games as a natural learning environments that enable authentic assessment and games as tools for facilitating engagement, personalized learning and 21st century skills, such as problem solving, collaboration and design.

Further promise in the educational potential comes from Bogost (2008) who proposes that games possess a unique form of rhetoric that enables them to convey messages and create experiences through rules and processes. According to the author "procedural rhetoric is the practice of effective persuasion and expression using processes" (p. 125).

Another rule-based perspective on games and their potential use in education is provided by Linderoth (2014). Linderoth (2014) breaks down a game into rules and theme, whereas the theme has a subordinate role to the rules and serves mainly as a metaphor to support the rule facilitation to the players. This means that a theme is secondary and the learning opportunities provided by games stem from the rule system (Linderoth, 2014). Because of the key role of rules for utilizing games as educational tools, games are particularly suitable to use in scenarios with clearly defined educational goals that subject themselves to transformation into a rule based system (ibid). The same is not true to areas of teaching that have more open-ended goal such as writing, presenting and other performatory skills (ibid). According to Linderoth (2014), there are three major opportunities provided by interacting with rule-based systems such as games – steering the player's actions and achieving pedagogical side effects in the process, experiencing values and abstract concepts and representing a system. It is important to note that both Bogost (2008) and Linderoth (2014) look at games educational potential from a broader perspective than authors who focus solely on digital games (Prensky, 2001; Gee,2003; McClarty et al. 2012).

The above claims about the potential of and exploring the effects of game-based learning compared to conventional instruction has been in focus for researchers in the past decade (Hainey et al., 2011; Connolly et al., 2012; Young et al. 2012; McClarty et al, 2012). While some results point to a link between using games in the classroom and increased engagement, motivation and retention of knowledge (Hainey et al. 2011) the results seem to be highly dependent on the instructional context and thus are hard to generalize (Hays, 2005).

1.3   Limitations of Game-Based Learning

Furthermore, game-based learning has been subject to criticism because of its limitations. The term "gamer mode" has been coined by Frank (2011) to describe the phenomenon of players disregarding the educational goals of an educational game by primarily focusing on the rules and on winning the game. This is the result of ludification – the fact that the meaning of concepts within the game world is primarily steered by the game rules rather than the game theme (Linderoth, 2014).

Another key limitation of educational games is brought by Turkle (1995). According to Turkle (1995) the simulations that the game facilitates are problematic because the assumptions on which the simulation rules are based are not transparent to the player. This could lead to misinterpreting the way the system would work in practice. Furthermore, Tobias et al. (2011) introduce the problem of knowledge transfer when learning through games. The authors suggest that there is a significant risk that the learning gains during playing could be strictly limited to learning the game, rather than learning about a concept outside of the game system. This problem is particularly prominent when a game is used in isolation without being put in a wider instructional context (Marklund, 2015). Tobias et al. (2011) however suggest that situating the game in a wider educational context which provides for discussion and reflection could help breach the transfer gap to the real world.

1.4   Game-Based Learning and Context

Context has been suggested to be of pivotal importance for the success or failure of a game-based learning intervention (Marklund, 2015). According to Marklund (2015), for educational games to be beneficial the system and the training activities around the game should encourage reflection and discussion. A curriculum based solely on a gaming activity risks failing to deliver on its educational objectives (Arnseth, 2006). The importance of context is further supported by Hays (2005) who recommends that educational games are introduced as a part of wider curriculum and supported by debriefing and discussion so that the learners get an opportunity to reflect on the purpose of the game and the lessons learned from it. We adopt this approach in this project as well. Furthermore, Young et al. (2012) emphasize the importance of the instructor when using educational games and the potential of metagame activities for supporting game-related learning that is based on the social interaction that happens around the game, such as blogs, discussion forums and wikis.

2. Games and Learning Theory

Next, we would like to look at game-based learning from the perspective of major learning theories. We examine each theory in relation to educational games and outline the positive and negative implications for game-based learning that arise from that relationship.

From the perspective of behaviorism learning is the process of reinforcement of certain behaviors through a reward and punishment mechanisms (Greeno et al, 1996). Reinforcement through rewards is a common design pattern used in game design that in turn has also influenced educational game design in the past (Egenfeldt-Nielsen, 2006). The behaviorist approach to designing educational games has been criticized for being overly simplistic and providing little benefit to learning complex concepts (McKernan, 2015). However, behaviorist principles find application in drill games or games that aim at reinforcing a specific behavior (Egenfeldt-Nielsen, 2006).

Cognitivism, on the other hand, is focused on the process of understanding of concepts and theories, through reasoning, problem-solving and language (Greeno et al, 1996). While behaviorism focuses on extrinsic motivation, cognitivism looks at learning as an intrinsically motivated process (Greeno et al, 1996). Thus, typical game mechanics seen in cognitivism inspired games have to do with exploration and solving a set of increasingly difficult problems by mastering the learning content embedded in the game (Egenfeldt-Nielsen, 2006; Marklund, 2015).

Constructivism can be seen as an offshoot movement of cognitivism as it also emphasises understanding, however it focuses on the interactive process between the learner and the tools relevant to the thought subject (Greeno et al., 1996; Marklund, 2015). In constructivist context the game is seen as a means to facilitate a playful experience which in turn will enable the learner to construct knowledge (Egenfeldt-Nielsen, 2006). Both constructivism and cognitivism are subject to criticism when it comes to transfer (Shaffer, 2012). However, this issue can be addressed with the help of a debriefing which facilitates reflection and a critical discussion on the educational game content and its relation to the real-world (Kriz, 2003). That's why both of the games part of this project are followed by a classroom discussion.

Lastly, the socio-cultural perspective on learning depicts knowledge as distributed among people and their environment (Greeno et al. 1996). That's why it emphasizes the importance of context for the learning process (Egenfeldt-Nielsen, 2006). Games that promote socio-cultural learning will incorporate socialization and serve as a discussion starter (Marklund, 2015). As a result, the instructor has a

prominent role in the successful implementation of teaching approaches inspired by sociocultural learning theory (Marklund, 2015).

3. Games and Design

Game design as a field of research has had a strong influence on the practice of designing educational games (Marklund, 2015). In order to later in this thesis discuss design decisions not only in the light of learning theory, but also in the context of game design we would like to introduce the MDA framework (Hunicke et al, 2004) as well as iterative design (Salen and Zimmerman, 2013).

Hunicke et al (2004) break down a game into three major groups of elements and align them between the designer and player's perspectives. The three element groups are mechanics, dynamics and aesthetics. Mechanics are the basic rules that dictate how the game operates. Dynamics result from mechanics and thus represent the actual impact of the mechanics on the game experience. Aesthetics arise as a result of dynamics and refer to the feelings aroused in the player when playing the game.

While the MDA framework focuses on the building blocks of game design and the interaction between them, iterative design provides the process for solving game design challenges and is based on prototyping, play testing, evaluation and refinement (Salen and Zimmermann, 2013). It strongly resembles the iterative cycle of human-centred design consisting of four similar steps – observation, idea generation, prototyping and testing (Norman, 2013). An iterative approach to design allows for constant re-evaluation of the design that allows the flexibility to alter and improve the design on an ongoing basis, ultimately leading to a better final design (Salen and Zimmermann, 2013; Marklund, 2015).

4. Games and Organizational Context

While there is plenty of broad research on the use of educational games in the school or university classroom, the research on educational games in an organizational context tends to be focused on the area of simulation games (Kriz, 2003).

Joldersma and Geurt (1997) align types of simulation games on a spectrum between individual and organizational learning (Levitt and March, 1991) objectives. In terms of individual learning simulation games aim at explicating, changing and utilizing the changed mental models for promoting organizational change, whereas organizational learning objectives include discovering, testing and implementing ideas for change as a collective (Joldersma and Geurt, 1997). Wenzler and Chartier (1999) further extend the

organizational learning perspective by suggesting that simulation games are suitable tools for creating a big picture or gestalt understanding of a problem space for the learners. In particular, simulation games introduce a model of real-world scenarios with the goal of simulating the process of decision-making within a system as well as the cause and effect relationships between the system's elements (Kriz, 2003). Corti (2006) also emphasizes the potential of simulation game systems to expose the interdependent relationships between the actors in a business organization. Engaging with the educational games could help the employees realize the effect of their actions and behaviors on their colleagues and the company as a whole (Corti, 2006). Kriz (2003) distinguishes between two types of simulation games – rigid rule and free form. Rigid rule simulation games rely on a set of clearly defined rules and instructions to solve the objectives within the game, while free form simulation games allow the players to create the simulation in a flexible way as the game progresses with the help of an initial scenario and a facilitator.

Apart from using simulation games as a tool to teach specific skills in the organization, the act of designing simulation games can be turned into an efficient learning and problem solving exercise for the organization members involved (Kriz, 2003). Similarly, Ruohmaeki (2003) proposes combining organizational development and business process engineering principles for creating simulation games that support organizational change. Kriz (2003) argues that the process of designing the game allows for getting to know the simulated real-world system and potentially coming up with change and improvement ideas – an effect highly sought for in corporate change management context. Simulation games are represented as the means to tap into experiential and problem-oriented learning that helps to bridge the gap between theory and practice (Kriz, 2013).

Warmelink (2014) uses frame analysis to categorize the impact of gaming on organizations. The author uses two dimensions – the nature of gaming and its objectives. Gaming can be seen as a designed experience or a socio-cultural phenomenon and its objective could be either instrumentalistic or ideological. In this thesis we are particularly interested into the impact of games as designed experiences.

In parallel with simulation games, gamification is another game related concept that has recently gained popularity in business circles (Werbach and Hunter, 2012). Gamification is signified by employing game elements to create game-like experiences (Hamari et al., 2014) as opposed to games where the whole experience is framed as a game. Gamification is a technique applied in non-game contexts, so that certain motivational and psychological benefits associated with playing games can be gained (Deterding et al., 2011). Reward-based gamification primarily relies on points or other rewards within the gamified system to boost the extrinsic motivation of users (Nicholson, 2015). It has drawn criticism from game industry experts, who claim that gamification in its current form does not necessarily capture what makes games so compelling as a communication and persuasion medium (Bogost, 2011). The problem being that many

practitioners are reducing gamification to the usage of rudimentary game elements such as points and leaderboards. That's why in this thesis we focus on using actual educational games instead of trying to gamify a process.

5. Personal Accountability and Organizational Culture

Research on accountability, including personal accountability has been of particular interest to the public administration sphere (Mulgan,1999). The discourse has been mainly focused on the meaning of accountability, its various interpretations and their impact on the functioning of bureaucracies. In its classical sense accountability is associated with being able to respond for one actions and be held accountable, implying an external source of authority which exerts control of one's actions (Mulgan 1999).

However, an extension of that original meaning has been observed – a shift towards an internalized perspective on accountability that does not require an external source of control (Mulgan, 1999). According to Harmon and Mayer (1986) cited by Sinclair (1995) personal accountability is "fidelity to personal conscience in basic values such as respect for human dignity and acting in a manner that accepts responsibility for affecting the lives of others" (p.230). Sinclair (1995) suggests that the power of personal accountability stems from the fact that it relies on psychological rather than external controls.

Miller (2004) proposes the exercise of personal accountability as a countermeasure to victim thinking, procrastination and blame games at the workplace and in personal life. Miller's (2004) perspective on personal accountability is based on the assumption that the only factor we are in control is our own behavior. By taking ownership of their actions and shifting the focus from external factors beyond our control to our own behavior we can reduce stress, communicate better and be more efficient in solving problems (Miller, 2004). Thus, personal accountability arises as a guiding principle, a core value in its own right, an attitude for productive problem solving, rather than a mere concept for attributing responsibility (Miller, 2004). Although Miller's work lacks empirical evidence it addresses problems of poor communication and conflicts typical in a corporate bureaucratic context (Ruohmaeki, 2003).

As a mechanism highly dependent on values for functioning, personal accountability can be reinforced by organizational culture (Sinclair, 1995). Organizational culture – the collection of shared values, beliefs and behaviors within a group of people is a system of values and assumptions that first got established by a successful leader and then was internalized by the group as its own (Kotter and Heskett, 1992; Schein, 2004). Kunda (1992) presents organizational culture as tool for normative control as opposed to

bureaucratic control. Normative control relies primarily on rituals, social powers and commitments within the organization, whereas bureaucratic control counts on clearly defined hierarchies (Etzioni, 1975; Kunda, 1992). Normative control is criticized because it could lead to a collapse of the boundaries between the organization and the self (Kunda, 1992). This is due to the fact that normative control requires not only commitment to doing one's job, but also commitment to the values of the organization (Kunda, 1992). Furthermore, Kunda (1992) suggests that organizational culture is propagated by presentational rituals – activities that aim at linking the ideology behind an organizational culture and individual experience, such as managerial presentations, training workshops and seminars on organizational culture. Such rituals are often met with distrust and resistance from the employees because they are facilitated by management or agents of the management which have vested interest into exercising control over the organizations (Kunda, 1992). In the evaluation part of this project we want to observe how games are perceived as a presentational ritual for the promoting of personal accountability as a core value part of the organizational culture.

Project Description

In this part the project is described in detail both in terms of the finished product and the development process. This section begins with an overview of the chosen research methodology. Then the context in which the project was carried out will be described. This section also contains the project plan. Finally, a step-by-step description of the development process behind the two games in focus of this project is presented.

1. Methodology

1.1 Research Methodology

This project was carried out as a design experiment. A design experiment, also known as design research, is a form of research and evaluation methodology for conducting formative research, in this case for testing and improving an educational intervention based on educational games (Collins et al., 2004). The games were designed based on principles from multiple educational theories as presented in the literature review. By a step-by-step refinement of the game designs the goal was to develop better designs with each feedback iteration. Furthermore, design research has the goal of not only making the designs better, but also the goal of contributing to the underlying theory (Collins et al., 2004). This masters thesis focuses primarily on the improvement of the designs, but also includes reflections on the results from a theoretical perspective

It was decided to use design research as our methodological framework, since it allows to study the designs in a real world context and get results from formative evaluation (Collins et al., 2004). This is particularly important for the context of this master thesis as conducting research in a business setting requires to account for a multitude of factors and opinions from various stakeholders. With each iteration of our design experiment we could make sure we capture all this multitude of perspectives. The more perspectives are captured the more one would learn about what makes the designs work and what doesn't. That's why choosing a research methodology that strongly factors in the context of the research was so important.

Furthermore, the formative evaluation principles on which design research is founded are commonly used in business as well. This parallel eased bridging the communication gap between academia and business.

It made it easier to explain to all stakeholders involved in this project how their feedback helps us improve the designs.

While design research provides for certain benefits, it also presents the researcher with a set of distinct challenges. Due to the complexity of the real world the experiment is hard to be controlled and various difficulties can arise (Collins et al., 2004). The often changing designs further affect complexity and comparison between them could be an issue (ibid). Furthermore, when evaluating the designs the volume of the data produced by the various types of analysis, in our case observational, survey and interview data can pose a further challenge for the researcher (ibid).

Due to time and resource restrictions this design experiment was carried out in two main phases - testing and implementation. After each phase modifications were introduced based on the feedback received from the test users and the training participants respectively.

1.2 Data Collection Instruments

We followed Collins et al., (2011) recommendation to employ a combination of qualitative and quantitative methods to fully assess the effectiveness and impact of our designs. Thus, the evaluation of the design was approached from from three different angles - observation, survey and interviews. Semi-structured interviews were as the main data collection instrument. This allows for detailed qualitative data from the training participants and allows for probing on the side of the interviewer (Cohen et al., 2013). This is particularly important for being able to capture specific nuances in some of the participant's answers that can't be captured through a survey. However, we were limited to the amount of participants we could interview, because of the great amount of time required for conducting the interviews, subsequently transcribing them and analyzing the vast amounts of data resulting from them. Thematic analysis was used to evaluate the interview transcripts (Mills et al., 2010).

The survey, on the other hand, provided us with a quick and easy way to gather data from more training participants (Cohen et al., 2013). In that way the findings from the interviews could be double checked with the findings from the survey. This approach adds further reliability to our findings and also a quantitative expression of our data.

Lastly, also observational data that was gathered during the training itself is added. Although this data is not very high resolution in regards to what the exact perceptions and thoughts of the training participants are, it provides an unfiltered first hand impression of the response of the participants to the design (Cohen

et al., 2013). By observing the training one also gets information about the setting of the training as well as the wider training of which the games are part of. One gets to observe the communication between facilitator and participants. One also gets the chance to examine the dynamics that develop throughout the training and the role the games play in their formation.

1.3 Design Methodology

The design methodology employed in this project is based on iterative design principles (Salen and Zimmermann, 2013). The cycle of prototyping, play testing, evaluation and refinement was strictly followed. A detailed description of these steps for the two games can be found further in this chapter.

2. The Context

2.1 The Company

As explained in the introduction this project was carried out in collaboration with the company currently employing the author of this thesis - further referred to simply as 'the company'.

The company is a traditional Swedish manufacturing company with a long tradition for innovation. The company has originated as a gun manufacturer, but has constantly reinvented itself, changing its core product focus multiple times throughout its history. Nowadays, the company serves a global market and its manufacturing footprint expands all over the world.

The company is organized in divisions that represent its core brands. Each division operates autonomously, while collaboration on cross-divisional projects is strongly encouraged and supported by Group Operations. Group Operations is a department that drives operational excellence in logistics, sourcing and supply chain. It drives improvement efforts that require coordinated effort between the divisions and spreads best practice.

For the purpose of this project we would also like to introduce the People & Organization department. It is the department that drives human resource management, talent management and educational efforts across the company.

The company promotes the following key behaviours to its employees:

- Customer First
- Collaboration
- Focus and Simplicity

Those values have been of key importance when designing the games. One of our goals has been to incorporate those values in our educational game design - especially when designing the various scenarios found in the games.

2.2 First Steps

At the beginning of this project a meeting was held with interested stakeholders from the company, representing Group Operations, People & Organization and Sourcing. We had started this project with the premise that the author would like to do research on the use of educational games in a corporate context with the motivations outlined in the introduction - namely, evaluating the effectiveness of educational games for teaching in a corporate context and exploring educational games as an alternative tool for facilitating change and organizational culture building. This wish was met with a great enthusiasm by representatives of Group Operations and People and Organization as gamification had been of interest for some time. Thus, any projects related to putting games into practice in the corporate context were very welcome.

Another important factor that contributed to the timelines of a project dedicated to educational games was the fact that education and e-learning in particular were high on the corporate agenda. An expansion of a learning management system for internal use was due. That's why the educational focus of our proposed project was strongly endorsed by the involved stakeholders.

In addition, the company had been doing quite well in the past few years, which had contributed to a positive attitude to growth oriented initiatives - initiatives that explore new to the company approaches of innovative nature. From the perspective of the company educational games were exactly that kind of novel technique that hadn't been widely employed in the company's own context.

The combination of those three factors - interest into games as a tool in a corporate context, interest in educational technology and desire for exploration of innovative approaches, made this project possible.

2.3 Idea Generation

At an initial meeting in September, 2016 three alternative proposals for the application of educational games in the company's context were proposed:

- Personal Accountability
- Onboarding
- The Company's History

As an input for the proposals we used relevant company documents outlining vision, strategy, key behaviours and upcoming projects of high priority. What we tried to do with the proposals is address areas of high importance for the company where a strong educational effort was required for the success of a project. The reason for this approach was to add as much value as possible to the organization by the realization of this master thesis project. We also wanted to be as open for ideas as possible. This stage can be related to the observation and idea generation phases of Norman's (2013) iterative cycle of human centered design.

Each proposal was described in terms of goal, target group, game concept and aesthetics (Hunicke et al., 2004).

The proposals were presented to the above mentioned stakeholders and a brainstorming discussion was held for gathering further ideas inspired by the presented proposals. At the end of the session it was decided that all stakeholders will take a month to think of the proposals and additional ideas that can become the subject of our master thesis project. A follow-up meeting was set up in a month on which to take a decision on what the exact topic of our educational games related project will be.

After deliberating for a month and discussing within their organizations, we met with the stakeholders again and it was decided that the proposal for a personal accountability game was the one to add most value for the time being. The reason for that decision was that a division-wide effort on personal accountability training was to be started in 2017. So, developing a game or games[2] to use as part of this training effort would have been beneficial to a higher impact training.

This early stage of the project can be related to the idea generation phase

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[2] At that point it was not clear whether we will have a digital or a non-digital game, or both, however a preference for a digital game was expressed by the stakeholders.

2.4 Personal Accountability Training

Training in personal accountability had been first introduced in one of the company divisions, primarily in its United States locations. After many years of successful training efforts in the said division, now the training was to be introduced to the largest division of the company as well. A train-the-trainer model was to be employed to handle the large amount of employees to be trained - over 700 in over 10 different countries. The training consists of a series of videos and classroom discussion exercises that are usually delivered as a part of one full day workshop. The training material is almost exclusively based on John Miller's book QBQ! The Question Behind the Question: Practicing Personal Accountability in Work and in Life (2004). For which a license had been obtained from the author and a series of videos shot with him, exclusively for the company. The games were to be piloted in one of the initial trainings in Sweden, with the condition, if successful to be used in the rest of the future personal accountability trainings.

3. Project Plan

Once the topic of the project was set to personal accountability we started first with developing the digital game concept storyboard[3] and subsequently the card game[4]. The card game was developed as part of the Educational Game Design course at the University of Gothenburg lead by Prof. Jonas Linderoth during November and December 2016. For a detailed description of the card game development process please refer to the next subsection - Card Game Development Process.

In January 2017 a project plan was crafted that was to capture the development of the digital game, the evaluation of the games and the writing of this master thesis. The project plan was developed as part of the Products, Project and People Management course at the University of Gothenburg lead by Gül Calikli. There were several reasons for devising a detailed project plan. First, this project was to be carried out in parallel with working 4 days week. Thus, the available time had to be stringently planned. Without such planning the risk of never finishing the project was quite high. Second, the project was comprised of activities completely novel to the author, such as independently delivering a piece of software. That meant that a lot had to be learned specifically for the purposes of this project - for instance using the software, designing the game art and animating it. Without a plan one would be bogged down into too many problems to solve at once. Lastly, the plan helped to communicate progress of the project to all involved stakeholders in an easy and simple way.
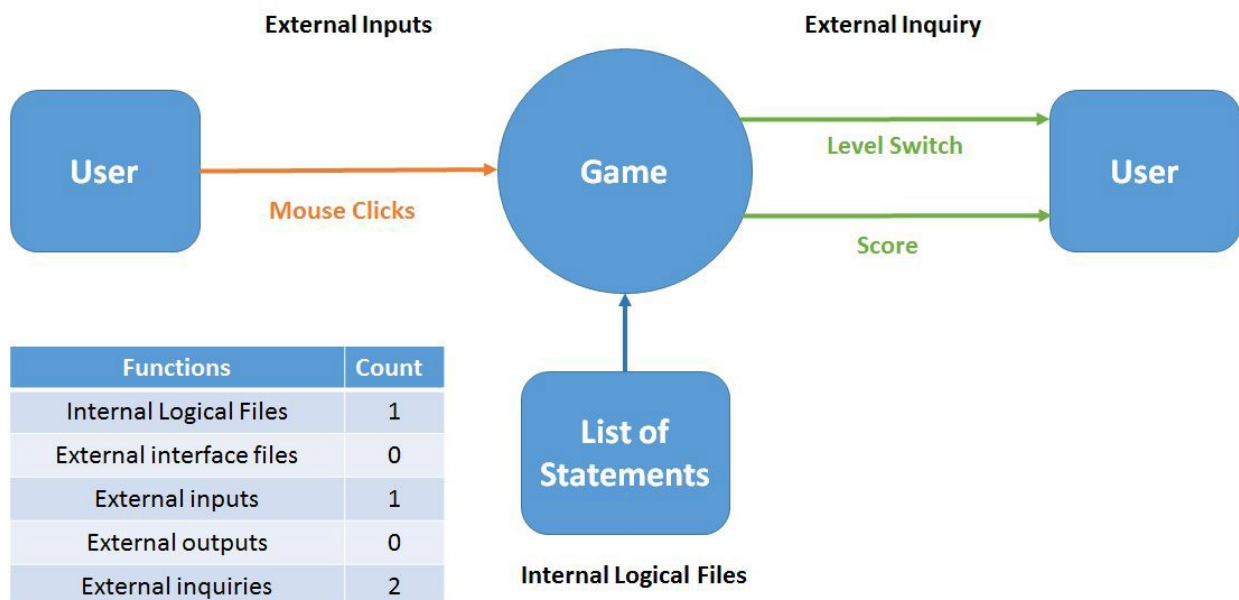
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[3] See Appendix II.
[4] Also referred to as the board game or the physical game

The project plan is broken down in four parts - function point analysis, time and effort estimates, schedule and risk management. The function point analysis helps us estimate the amount of lines of code for the digital game based on the planned game functionality. Next we use the function point analysis results as an input in our time and effort calculation. Then we provide a detailed schedule for the project activities organized in three phases and we finish with an analysis of the possible risks for the success of the project. The project plan is presented as originally drafted - any deviations from the plan are discussed in the development process sub-sections.

3.1 Function Point Analysis

The function point analysis led to a score of 4 unadjusted function points (Cadle & Yeates, 2004)(Fig.1). We have chosen not to adjust the function points for complexity as the software we are to develop is extremely simple. Then the QSM Function Points Languages Table has been used in order to estimate the amount of lines of code per function point (QSM, 2009). The language to be used in our project is C#. The high value of 70 has been chosen since I will be working within Unity for the first time, thus the code I will be writing might not be the most efficient in terms of length of code. In the complexity adjustment step we arrive at a value adjustment factor of 35 (Fig.2). The scoring reflects an emphasis on user-friendliness and performance. Thus the final estimate for lines of code is 280(= 4*(0.65+0.01*35)*70).

Fig. 1 - Function Point Analysis Diagram

Functions	Count
Internal Logical Files	1
External interface files	0
External inputs	1
External outputs	0
External inquiries	2

Adjustment Factor	Score
Reliable Backup & Recovery	1
Use of Data Communication	1
Distributed Functionality	1
Performance	4
Heavily Used Configuration	1
On-line Data Entry	3
User Friendliness	5
On-line Data Update	3
Complex User Interface	3
Complex Processing	1
Reusability	3
Ease of Installation	3
Use on Several Locations	3
Ease of Adaptation	3
VAF	**35**

Fig. 2 - Process Complexity Adjustment

3.2 Time and Effort

According to the COCOMO project complexity classification (Cadle and Yeates,2004) the project in question can be deemed organic, as the development will be primarily done by one person with the occasional involvement of extra contributors. Using the lines of code estimated through the function points analysis we arrive at a development effort of 0.84 person-months (=3.2*(0.28)$^{1.05}$). The development time in turn would be 2.34 months (=2.5*(0.84)$^{0.38}$). This leads us to an average staffing of 0.34 persons per month (=0.84/2.5).

During the autumn term I developed a game of a similar complexity as part of a Coursera game programming course. The time it took me to do that was 30 hours. However, given that the development was on a different platform - Microsoft XNA and MonoGame - I estimated a higher amount of hours needed for the current project. A considerable amount of hours will need to be spent on familiarizing oneself with the Unity game engine. It is also to be considered that the coursera project was heavily supported by the tutors with pre-made code and detailed instructions. The absence of those elements will further increase the amount of hours needed for our current project. Thus, the estimate of 127 hours needed to complete the application estimated by using COCOMO is in line with my experience so far.

On the other hand, both Microsoft XNA and Unity use C# for scripting which will allow for some transfer of knowledge. There will be also some support in terms of software architecture from the master thesis supervisor.

3.3 Schedule

The project has been broken down in nine distinct steps comprising the three phases of the Unified Process - elaboration, construction and transition (Fig.3) (Cadle and Yeates, 2004). The initiation phase has been intentionally omitted, since it has been already carried out last year before the beginning of this project.

Fig. 3 - Gantt Chart

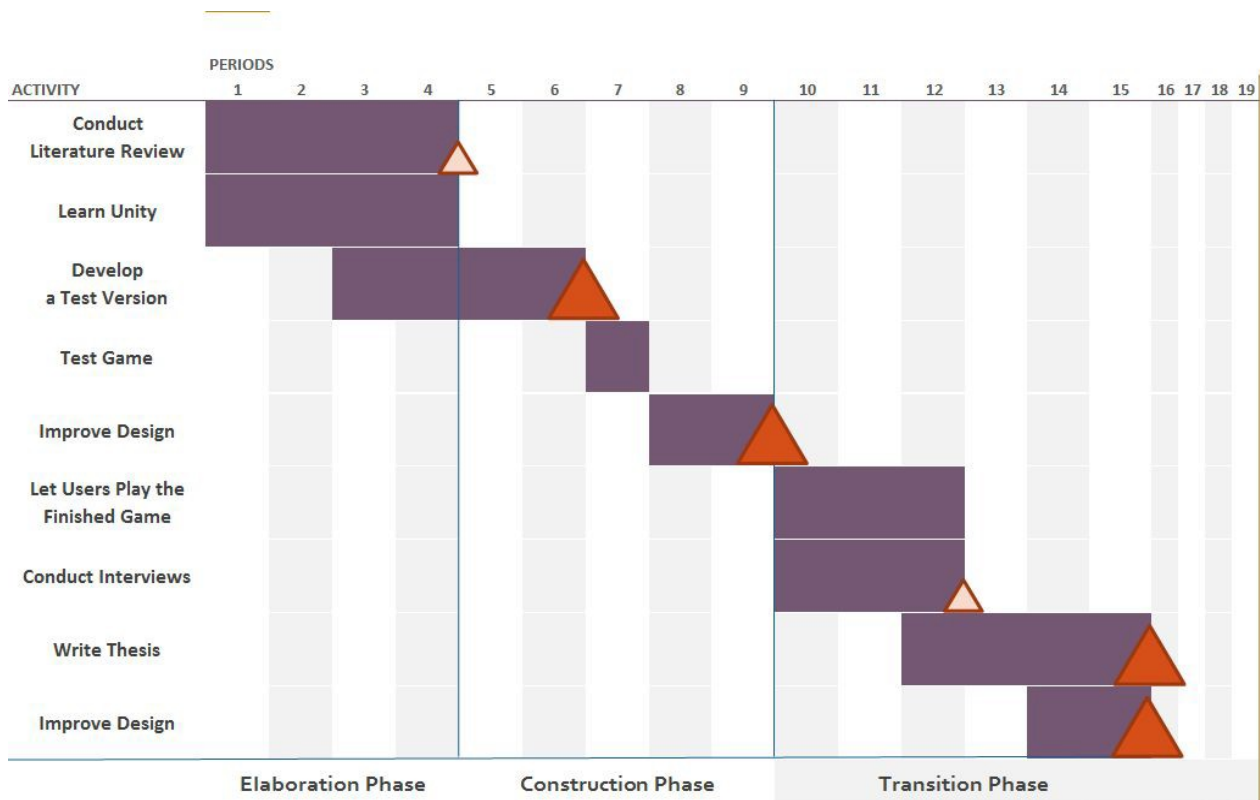- Elaboration Phase

During the elaboration phase the plan is to focus on exploring the literature on using educational games for improving organisational culture, in order to gain insights for the game to be developed. Completing the literature review represents a minor milestone for the project. In parallel, learning from the tutorial material available for Unity on 2D game development is required.

- Construction Phase

In the construction phase the focus is on designing and building in Unity a working test version of the game. One can see that the test version development starts already during the elaboration phase as after some initial investigation into Unity and the literature the work on the games is expected to start. In this way one can learn and work on the game in parallel, saving valuable time. Delivering the test version represents a major milestone for the project, as it provides a major opportunity to align design and requirements. Once that version is available a test will be conducted with a group of selected users. Based on the test, adjustments will be carried out, so that the game is ready for production. Releasing the game into production represents yet another major milestone for the project. The planned 127 hours for developing the game refer to the elaboration and construction phases of the project. Thus, it is planned to commit approximately 14 hours a week over the first 9 weeks of the project.

- Transition Phase

Another 120 hours are estimated to be required for the transition phase over a period of 6 weeks. This time will be used for playing the final version of the game with a wider group of users and conduct interviews to capture their impressions and feedback. The interview results represent a minor milestone, because the results are only a prerequisite for the analysis to be carried out on them. Already during the interviewing stage summarizing the findings will start in what in the end will turn into the master thesis. In parallel, adjustments will be made to the game in order to incorporate the feedback from the interviews. This leads to our two final milestones namely the master thesis completion and the improved version of the game.

The effort for project management hasn't been represented in this gantt chart since this is mostly a one-man project. However, overhead time has been reflected when estimating the time required for the steps part of the transition stage.

3.4 Risk Assessment

The three high priority risks for the project in question are as follows (Cadle and Yeates, 2004):

- Technical Risk - Unfamiliar Tools

As already mentioned the Unity game engine that will be used to develop the game is a new tool for me. It is also not guaranteed that any potential extra contributors to the project will be familiar with Unity. In addition, some extra tools might need to be utilized in order to create assets to be used in the game - for instance graphics, sounds, animations. The probability that the project schedule will be adversely impacted due to unpredicted issues with the new tools is medium to high. In addition, this risk could also have impact on the design of the game as the game engine software will present particular constraints

typical for the Unity game engine, that wouldn't have been there, if another game engine was chosen from the beginning. Thus, the impact of this risk can be described as large. To reduce the likelihood of this risk occurring one could employ an avoidance strategy - namely to focus on familiarizing oneself with the tools ahead of the project start as much as possible (Cadle and Yeates, 2004).

- Requirements Risk - Ambiguity in Requirements

Although, requirements have been already specified by the relevant stakeholders, there is the risk that during the course of the project more requirements get added to the already established one. The reason for this is that the requirements have been set in very broad terms. From my working experience I would estimate that the probability for this risk to materialize is high. The extra requirements would most surely have an impact on the schedule. That's why an acceptance strategy is to be adopted in this situation. In case of extra requirements hours from the transition stage can be shifted to the construction stage, as 20 hours out of the 120 hours allocated to the transition stage have been planned for such contingencies. In addition the time allocated per week during the construction phase could be increased by up to 4 hours a week in case the need arises.

- Relationship Risk - Poor Access to Stakeholders

Another risk for the successful completion of this project could be poor access to stakeholders. Since the project relies on regular feedback from the business stakeholders, having trouble to contact those key stakeholders could slow down the working process or lead to a lower quality of the end product. I estimate the probability for this risk to materialize as medium. A way to deal with this risk is to ensure the stakeholder involvement early in the project by showing good results on a regular basis (Sandberg & Mathiassen, 2008). Furthermore, one could plan a good period of time in advance for stakeholder meetings and activities (ibid).

4. Card Game Development Process

In this subsection we walk the reader through the development process of the card game. We start with explaining our departure point and initial goals during the prototyping. Then we describe in detail the various elements of the design - their purpose and the way they interact with each other. We conclude the subsection with a review of the feedback received through the multiple testing occasions and the measures taken to address that feedback.

4.1 Description of the Design

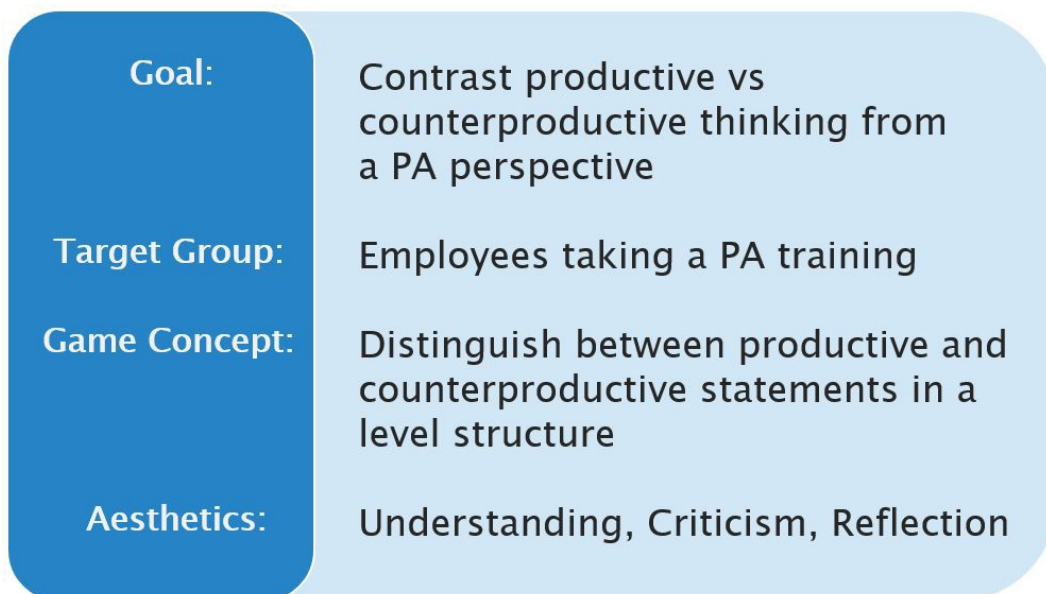We started the development of both games based on the following initial proposal:

Fig. 4 - Initial proposal for a personal accountability game.

As mentioned earlier, initially it was not decided whether the outcome of this project would be a digital or a non-digital game. However, when we started developing the initial ideas it became evident that we would need to develop two separate games - a digital and a non-digital one to fully capitalize on the benefits of using educational games. This decision was to a big extent inspired by Linderoth (2014), who emphasizes the fact that a game being digital does not necessarily provide an advantage over the more traditionally popular in the classroom non-digital games. In addition, the programming skills of the author were close to non-existent at the beginning of this project. Thus, developing an advanced educational digital game that makes use of all the theoretical principles we wanted to employ, such as those from procedural rhetoric and all the various educational theories was impossible. On the other hand, there was strong desire from the company to have a digital game as well, even, if it is limited by the author's skills.

That is how the idea of a combined approach originated. We would first design a card game in which we are not restricted by technology to fully employ the advantages of educational games. Then, we would develope a short digital game that would serve as a prelude to the card game. In that way we utilized the strengths of both digital and nondigital games and made the most of the time, skills and resources available to this project.

4.1.1 Cards

To gather inspiration for the non-digital game I read and thoroughly studied the book on which the existing personal accountability training is based - John Miller's QBQ! The Question Behind the Question: Practicing Personal Accountability in Work and in Life (2004). The idea for a card game based on personal accountability came to me indeed when I was reading the book - I thought that the concept of the question behind the question(QBQ) translates rather elegantly to a card format. It is quite common that questions are put onto a card and the answer on the back in various trivia, quizz-like games. In that way the answer is concealed from the players and they can be asked to guess it (Elias et al., 2012). Since in the case of the QBQ we also have questions and some more questions behind them, we could use the card format as the basic element of our game.

The card format also fit quite well with the educational goal of our game. The goal was to teach the players to distinguish between counter-productive questions - the first response we have when faced with a challenging situation - and productive questions-behind-the-question. The card format allowed to directly express this concept of contrast and polarity on the two opposite sides of the card. In that way our main game element - the card - becomes a metaphor for a challenging scenario with two very different sides to it, two diametrically-opposed perspectives. In that way, we provide a mental model, a gestalt for our players that they can come back to after playing the game when faced with real world challenges - an approach directly inspired by cognitivism (Greeno et al, 1996). Here we also follow Wenzler and Chartier's (1999) suggestion that simulation games are a good tool for facilitating a big picture or gestalt understanding.

In addition, this approach closely follows Linderoth's (2014) advice that an educational game should be build with the educational goal and the game rules in mind, rather than the theme. That is how we arrived at the core element of our game - a deck of cards with challenging scenarios, which the players need to solve by coming up with a productive question.
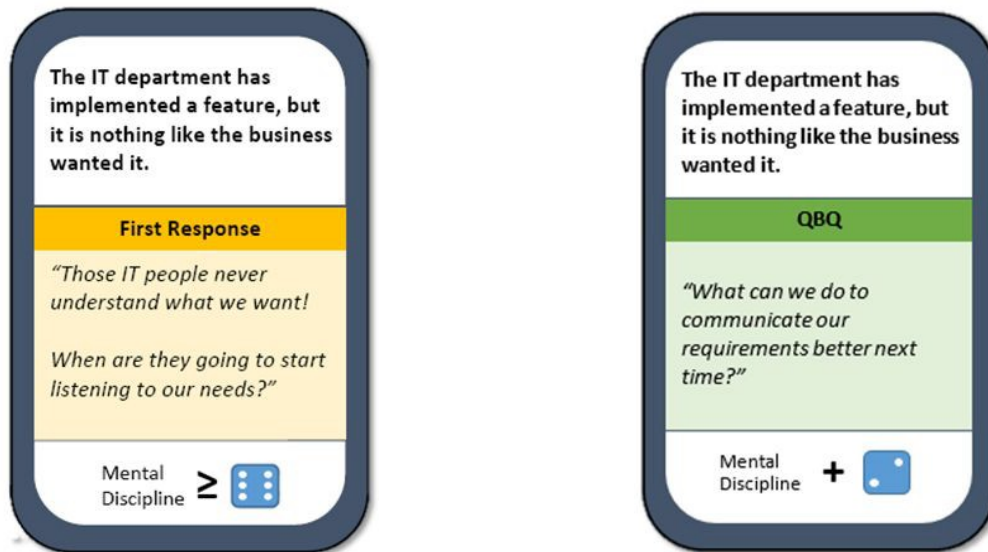
Front Card Side   Back Card Side

Fig. 5 - Card Design

Controlling for the correctness of the productive question suggested by the player as a response to the scenario was one of the design challenges we faced related to the cards. On the one hand we wanted to allow for freedom and originality when suggesting a predictive approach and on the other hand we had to control for correctness in some way. Leaving the answer completely open would make objective control for correctness impossible and providing only one right answer would be too rigid and will go directly against what we want to teach, namely that there are many right ways of acting personally accountable.

We found a solution of this dilemma in providing a single and in some cases multiple productive questions on the back side of the card. However, the criteria for passing the challenging scenario was not exactly guessing what those question are. Instead we said that a scenario is successfully passed, if any somewhat specific answer was provided by the player even if it didn't match the one written on the back of the card. But, if the player had guessed the questions on the back exactly right then she would get a bonus to her mental discipline roll to reward her for the extra perceptiveness displayed. In that way we kept room for freedom of expression but added an extra reward for the few cases when a player would guess the answer exactly right. This design decision also aimed to keep the players motivated to come up with original answers and prevent them from providing the generic answer "What can I do?" to every single scenario.

Now the following problem came up - how do we determine, if a question suggested by a player was good enough to pass the scenario? This design problem we solved by letting the players decide among themselves on what counts as a productive enough and specific enough question to pass the challenge. In

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that way we were aiming to create a point for an interesting discussion among the players. The players would have to argue why their question was a good, personally accountable solution to the scenario and they would also need to challenge other players' suggestions. We wouldn't have achieved that effect had we required one right answer or even worse - offered a multiple choice of questions.

4.1.2 Mental Discipline

Next we added the mental discipline score concept to the cards in order to account for the resource it takes to pass the challenging scenarios. In this way we build in procedural rhetoric in our game (Bogost, 2008). Different scenarios are differently challenging - some are easier to solve and some are harder - this is reflected into the different mental discipline scores displayed on each card. The players also get a proportional to the difficulty of the scenario bonus to their mental discipline score to represent the reward for successfully presenting a constructive approach.

To further strengthen our procedural rhetoric we added the mental discipline roll. The mental discipline roll is a simple roll of one six sided die. The player throws the die, if she has successfully provided a productive question suitable to the scenario and adds up the die score with the mental discipline bonus on the back of the card to see, if she has passed the scenario. If the sum of the die roll and the bonus are greater than the mental discipline score indicated on the front of the card, the player successfully passes the scenario. The goal with introducing this roll is to account for the randomness and difficulty inherent to making personally accountable decisions.

The mental discipline bonus acquired by correctly suggesting a productive question is the reward for consciously trying to approach the challenge from a personal accountability perspective. However, what we want to explain with the random mental discipline roll is that our decisions are not always perfectly rational and conscious. When faced with a challenging situation our emotions and mood play a large role in the decision making process. Acknowledging their role and learning to compensate for them with personal accountability principles is the right approach - that is what we teach our players. And when the mental discipline roll fails a player, even though she has proposed a good productive question, she learns that sometimes no matter how well we know what is the right thing to do in a situation, we still could succumb to our emotions and the disappointment from the challenging scenario.

It is important to mention here, that we don't want the players to feel like they have no control over the outcomes of the game, quite the contrary - the feeling that their answers matter is integral to the success of a game. That's why the probability to fail has been set to a specific level i.e. 50% when the player has provided a productive answer and 33 % when one has guessed exactly right the question on the back of the card. Those numbers might look quite high, but through testing we have come up with one more mechanic to influence and balance the mental discipline score - namely the personal accountability points. See 4.2.2 Personal Accountability Points for more details.

Finally, it could be added that our design decisions in relations to the cards along with the idea to introduce the mental discipline mechanic have been heavily inspired by Kriz's view of simulation games, namely as a model of real-world scenarios with the goal of simulating the process of decision-making within a system as well as the cause and effect relationships between the system's elements (Kriz, 2003).

4.1.3 Card Categories

Once the design of the cards was set a great amount of effort was dedicated to designing realistic, interesting scenarios. Those were inspired by my year long experience as an employee of the company. Throughout the years I have repeatedly met with frustrating scenarios myself and have also developed a feeling for what my colleagues find frustrating. It was important to come up with scenarios typical exactly for the company in question, as that would add extra realism and credibility to the game when played by employees of the company. First, I tried to come up with specific areas that are a common source of frustration (See Fig.6). Once the four categories of scenarios were in place, five scenarios per category were drafted and rated in terms of frustration based on my personal experience. Each category was given a colour to distinguish it from the rest. The role of the card categories is to give a sense of structure to the players, otherwise we would have a blur of 20 randomly selected scenarios. By breaking down the scenarios in categories we try to make it easier for the players to orient in the scenarios.
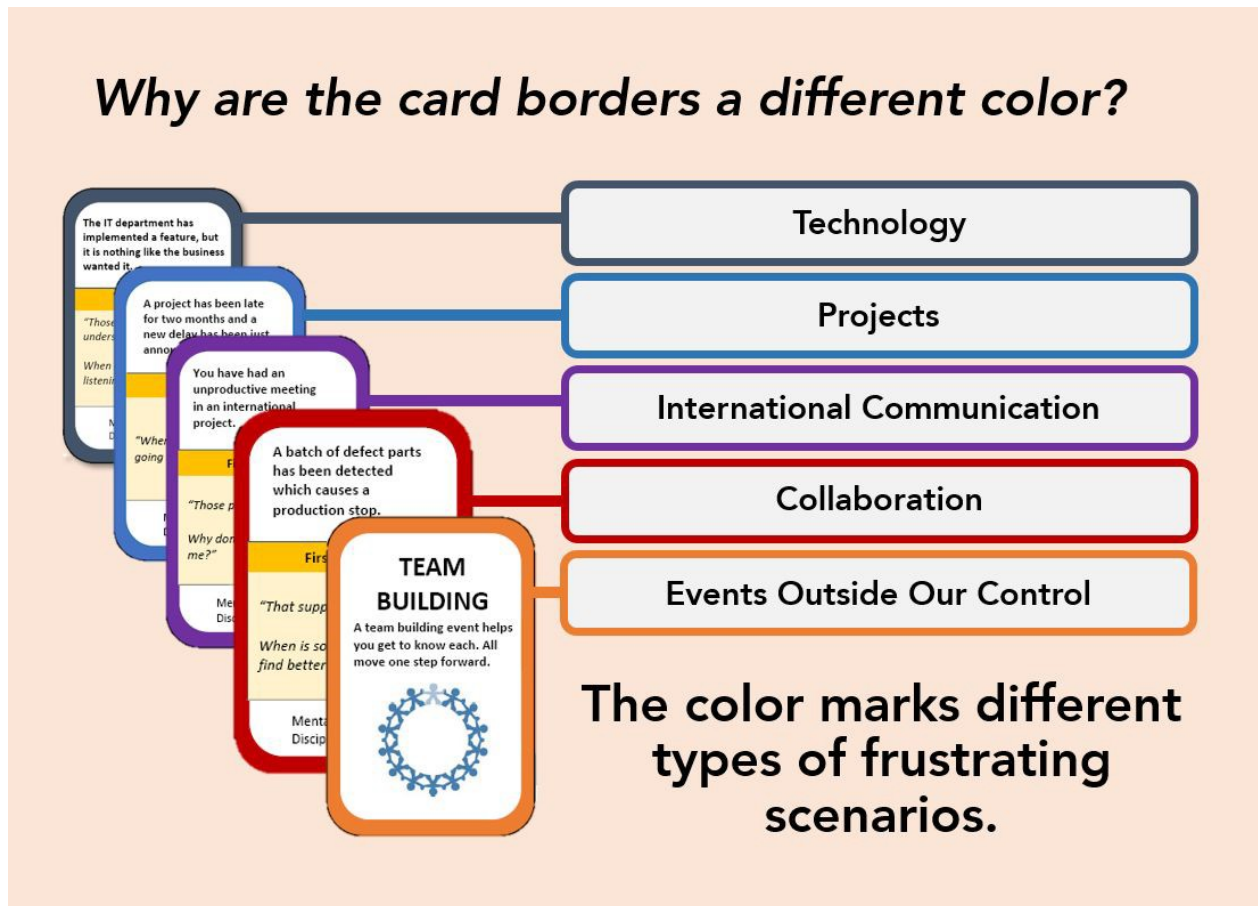
Fig. 6 Card Categories - Excerpt of the Quick Rules - a powerpoint presentation especially designed for the game facilitators to help explain the game rules

4.1.4 Game Board

The last game element to be designed was the game board that would help the players to keep the score and track their progress throughout the course of the game. The game board consists of a linear progress track divided in single fields to measure each movement on the board. The progress track is divided in two parts - frustration and collaboration. If the players do well with passing the scenarios on the cards they would move further on the collaboration track. If they fail the scenario repeatedly they will move backwards into the frustration part of the board. This design aims at portraying the simple logic that as we get better at tackling frustrating situations the collaboration levels at the company rise and equivalently, if we let emotion and disappointment take over we contribute to a higher frustration levels at the company.

To further the idea that acting or not acting in a personally accountable manner has a long reaching repercussions across the company the game board was decorated with illustrations showing the

consequences of the players actions. As the players progress up the collaboration track or descend down the frustration part of the progress track, they can see how their progress affects office climate, key performance indicators, customer's satisfaction and ultimately the profit of the company. The goal again is to increase the impression of the players that their actions matter and to illustrate the relationship between personally accountable behaviour and business performance. We expose the interdependent relationships between the actors in a business organization, utilizing a core strength of simulation games (Corti, 2006). A colour palette based on blue and orange has been chosen as those two colors are commonly used as brand colors at the company.
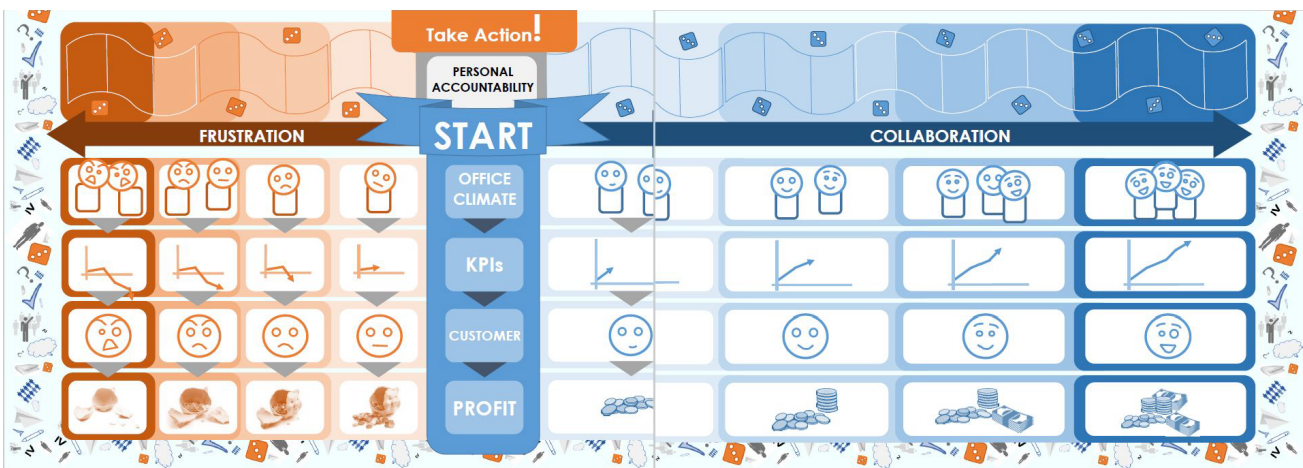
Fig. 7 The Original Design of the Game Board

4.1.5 Theoretical Founding

So far we have described our game elements - the mechanics on which they are based, the dynamics they create and the aesthetics that they are supposed to evoke (Hunicke et al, 2004). I this subsection we further relate the design of the card game to the theoretical concepts already outlined in the literature review.

The card game is a designed-experience with a rather instrumentalistic objective, although it can be argued that it also has somewhat ideological objectives since the taught content is strongly related to organizational values and culture (Warmelink, 2014).

We can also look at the card game as a rigid rule simulation game with individual learning goals (Kriz, 2003; Joldersma and Geurt, 1997). Through the game we are aiming at providing a big picture or gestalt understanding of the personal accountability problem space as suggested by Wenzler and Chartier (1999). Furthermore, we try to avoid gamer mode by designing the rules around what we want to teach and use the theme just as a support, mainly when designing the game board (Frank, 2011; Linderoth, 2014). The game is designed in such a way that one can not successfully play the game without understanding and applying the principles of personal accountability. In that way we make sure that the players engage with the learning content. The key design element that contributes to that dynamic is the freedom the players have when answering the question. That freedom requires them to be fluent with the personal accountability principles taught in the training.

We have followed Linderoth's (2014) observation that scenarios with clearly defined educational goals are particularly suitable for a transformation into a rule-based system. Our educational goal, namely to teach the players to contrast and distinguish between productive and counterproductive statements from a personal accountability perspective has been explicitly stated at the beginning of the project. It is clear enough, so that we can reduce the exercise of making a decision in a frustrating scenario, into specific rules - scenarios represented on cards, mental discipline roll, passing score for moving forward and so on. In this way we are representing the real life decision making process into a game like system, thereby offering the players the opportunity to explore the system and experience the scenarios provided in the game (Linderoth, 2014).

We have also followed Marklund (2015) and Tobias' (2011) advice to situate the game in a wider educational context, in order to increase the transfer effect experienced when playing the games. The card game is to be played in conjunction with the personal accountability training with multiple opportunities for discussion and reflection before the game and after the game (Marklund, 2015).

From a learning theory perspective the game is build primarily on cognitivist and socio-cultural principles. The game is build around solving the scenarios through reasoning and understanding of the personal accountability principles outlined in the training (Greeno et al, 1996). We also facilitate exploration of the scenarios by presenting them in a randomized fashion through the deck of scenario cards (Egenfeldt-Nielsen, 2006). The players need to master the learning content embedded in the game by solving a set of problems represented by the cards (Marklund, 2015). The players need to discuss their solutions and negotiate what qualifies as a right answer - a core dynamic in the game directly inspired by socio-cultural learning theory (Marklund, 2015).

4.2 Feedback from Testing

The game was first tested as part of the Educational Game Design course at the University of Gothenburg under the supervision of Prof. Jonas Linderoth. During those first tests carried out with classmates the event cards and personal accountability points were added. The second test was carried out after the improvements from the first test were implemented. That test was carried out exclusively with stakeholders from the company. As a result the design of the game board was revised and the idea to use designing cards for the game as a training exercise originated.

4.2.1 Event Cards

The event cards were suggested during the first test of the card game as a way to introduce variety into the scenarios deck. Initially, the deck of cards was comprised only of scenario cards for the players to solve. Thus, the testers expressed the observation that the game feels a bit dull and would benefit from additional types of cards. We designed the event cards to address this feedback. The event cards function similarly to surprise cards in Monopoly. Their effect is concealed until triggered and they get mixed with the scenarios cards, so they get drawn randomly.

The event cards represent events from the daily practice of the organization that are outside of the player's direct control. They represent events which affect the affairs of the business either positively or negatively. Consequently, in the game the event cards affect the state of the game board by helping players to move forward or providing a disadvantage when rolling for mental discipline for example. When designing the event cards we tried to keep the procedural rhetoric principles employed in the design of the scenario cards (Bogost, 2011). The ideas for the event cards were drawn from the author's experience at the company, which makes them more realistic. Furthermore, their effect is designed so, that it matches the event, i.e. positive events would help the players do better and negative events would make it harder to progress on the collaboration track. In addition, the event card has a quote from John Miller's book (2004) on the back side - "How can I let go of what I can't control?" - to further a key principle from the personal accountability training, namely that some events are outside of our control and no matter how good we are at personal accountability we would not have any control over their outcome and effect on our professional lives.
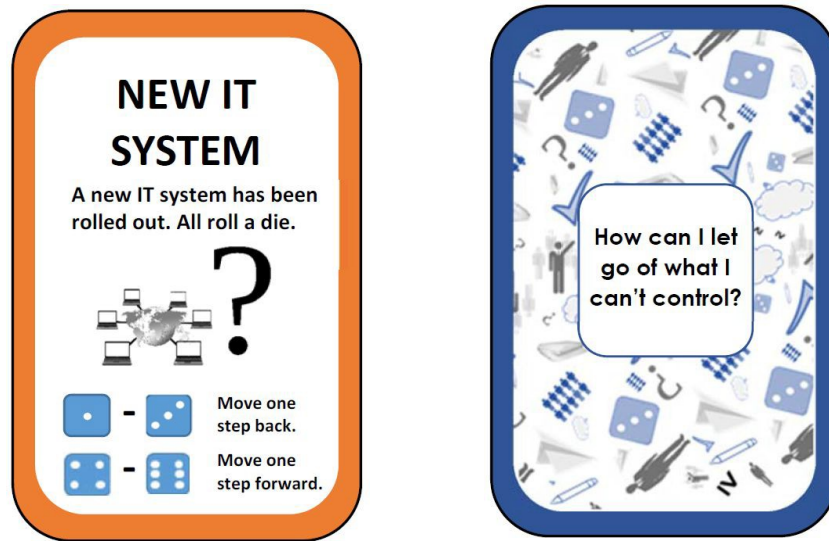
Fig. 8 - Event Card

4.2.2 Personal Accountability Points

During the initial tests it has been also suggested the game lacks somewhat in terms of feeling as a game. That's why one extra mechanic was added, namely the personal accountability points. The player is rewarded one personal accountability point upon successfully passing a scenario card and can spend that point on improving their mental discipline roll in case they need a better score to pass a challenge.

In terms of dynamics the goal with the personal accountability points was to add an extra level of interesting choices that would enrich the game experience (Hunicke et al, 2004). The points also add an extra level of tangible reward when passing a scenario successfully. We have also tried to design this mechanic in such a way that it also contributes to the procedural rhetoric of the card game. What we want to convey here is that the more one overcomes frustration by applying personal accountability principles, the more one is prepared for facing challenging situations in the future.

This particular intervention could be easily mistaken with pointification (Prestopnik and Tang, 2015) - points are being added in order to make the game more interesting and engaging. However, the difference is that we don't add the points only to measure outcomes and reward behaviour. The points have a specific purpose - they can be used to affect the state of the game and they also have a procedural meaning, they are not only points that are unrelated to the context of the game.
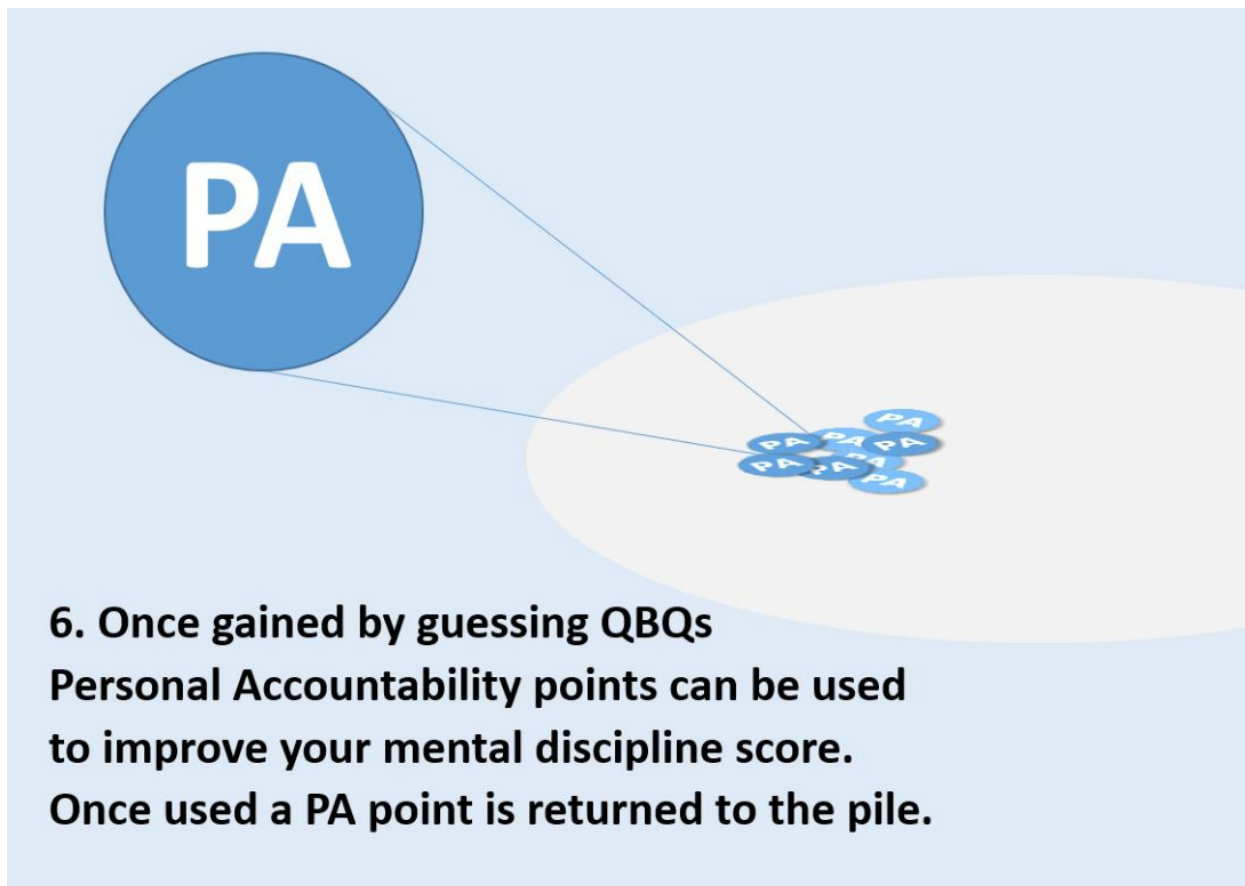
Fig 9. Personal Accountability Points

4.2.3 Updated Game Board

During both the initial tests and the tests with stakeholders from the company it was pointed out that the initial design of the game board was somewhat confusing. A big part of the board was taken by a series of illustrations. They resembled cells that are part of the playable area of the board. The players expected to move on those cells or that those cells are somewhat involved in the gameplay, and that was not the case. To avoid such misunderstandings we redesigned the board as per the suggestions of the testers (See Fig.10). We gave the progress track that was actually part of the game a more central position on the game board, in order to direct the attention of the players to it. We also reduced the size of the images that were not directly involved into the game and also arranged them in a circular manner in order to portray the circular interconnectedness of the illustrated factors.

Fig. 10 - Revised design of the game board

4.2.4 Rule Facilitation Aid

During one of the tests with stakeholders from the company it was suggested that extra care would need to be taken with explaining the rules to the players, as we have employees with diverse backgrounds, when it comes to experience with games. To address this concern we developed a series of slides in Microsoft Power Point that explain the rules through pictures and illustrations. The presentation would serve as extra aid for the facilitator to explain the rules quickly and effectively. Also a summary (See Fig. 11) of all steps involved in a game atom would be projected on the screen while the players play the game for their reference (Elias et al, 2012). You can find the full presentation in Appendix I - Rule Facilitation Aid Slides.
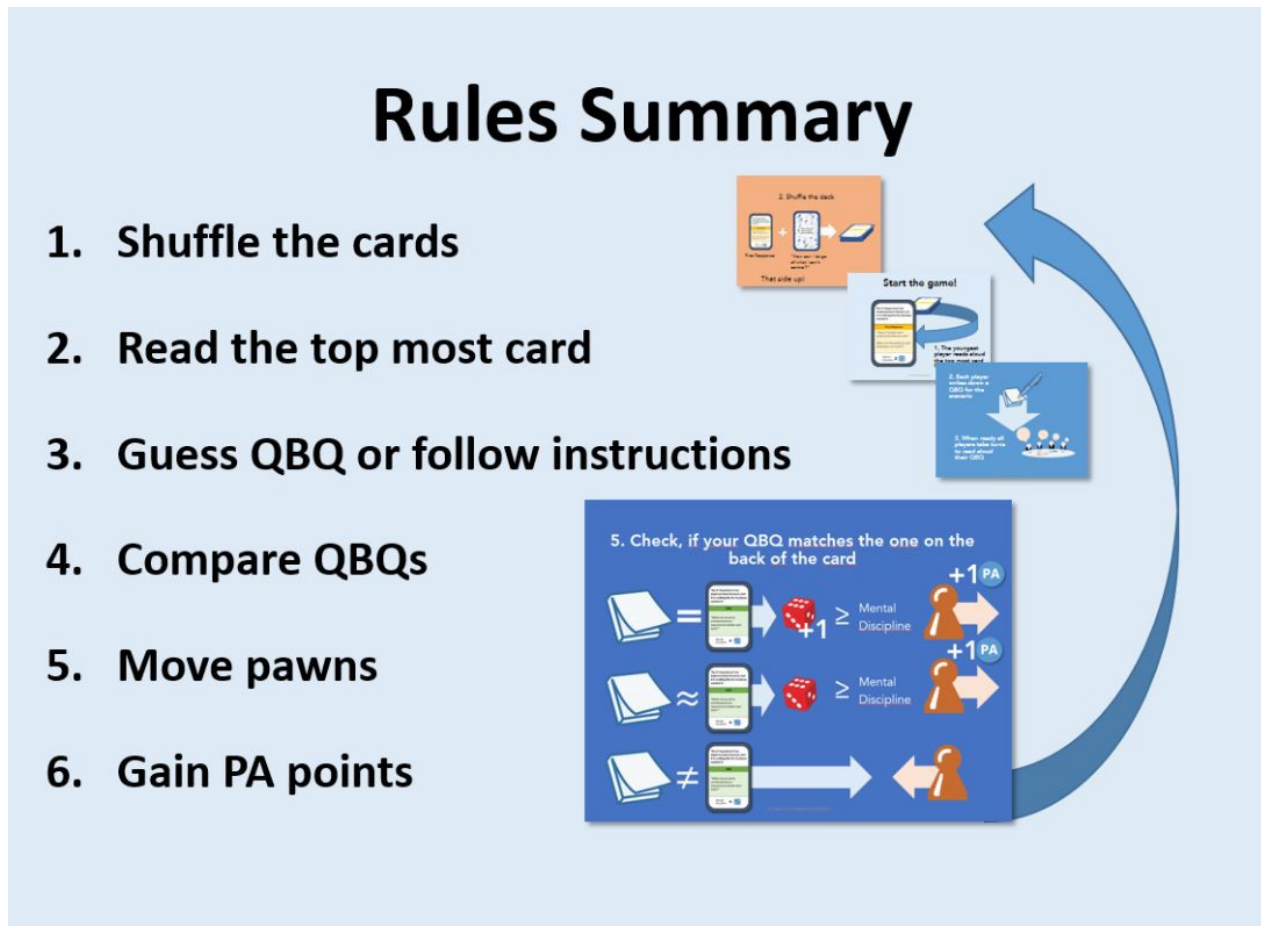
Fig. 11 - Rules Summary part of the Rules Facilitation Aid Slides

4.2.5 Designing Cards

Inspired by Kriz's (2003) observation that the act of designing simulation games can provide an efficient learning opportunity in its own right and the feedback from the testing, we came up with the idea to let the personal accountability training participants design their own cards to later use in the card game. For that purpose we designed blank template cards following the design of the cards in the game (See Fig. 12).

Designing cards fits well into the wider training, as there already is an exercise in which the players are asked to share what frustrates them in their work at the company and provide specific examples of situations in which their personal accountability has been put to the test. By introducing the cards into this exercise we provide a clear format to the training participants for sharing their experience and also introduce the card and its structure as the basic element of the card game. In that way later on when the

participants are asked to play the game they are already familiar with the card design and would have an easier time understanding the rules.

The learning facilitated by this exercise can be directly linked to socio-cultural theory as the training participants are encouraged to share their experiences in a structured way (Marklund, 2015). In this process of exchange the participants are exposed to different challenging scenarios and approaches for dealing with them.
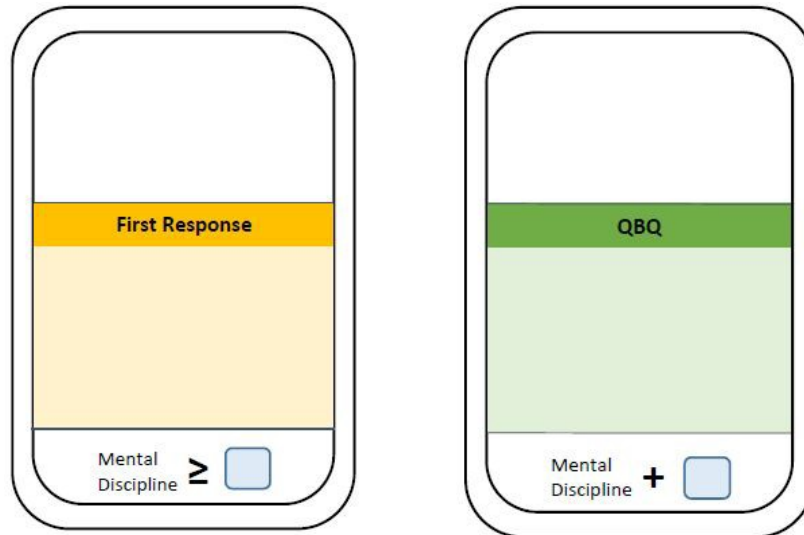
Fig. 12 Blank Card Template

5. Digital Game Development Process

In this subsection the development process of the digital game is outlined and discussed.

5.1 Description of the Design

5.1.1 Prototyping

First, concept storyboard slides were developed that illustrated the key interface elements and the different levels in the game. Microsoft Power Point was used for this purpose, due to the design freedom offered by its numerous accessible features and overall rich functionality. See Appendix III - Digital Personal Accountability Game - Concept Slides for more details.

Once the concept storyboard was approved by the company stakeholders a short demo was developed on the Scratch[5] platform. The Scratch platform was chosen due to the simple programming interface, which allows for a time efficient development of demos. In this limited demo the player could try out the first level of the game and evaluate questions just like in the final design. The goal with developing this demo was to give a better idea to the involved stakeholders of how the finished game would look and feel. Furthermore, the demo would allow for early feedback on the game concept, so that costly reworks could be avoided later on in the development process.

As soon as the demo was approved by the stakeholders, the project plan presented earlier was developed. A great amount of effort was also dedicated to studying the Unity[6] game engine that was used to develop the game. However, with the help of available literature and tutorials made available by Unity[7] we managed to successfully implement the game (Hocking, 2015).

5.1.2 Level Structure

The idea was to create a game in which the player evaluates personal accountability statements in the form of questions. We have grouped the questions in four different levels of progressing sophistication (See Fig. 13). Each level portrays a slightly different context for personal accountability principles application, namely the individual, the office, the division and the world. In the structure of the levels we also portray a progression from the narrow context - the individual to the broader context the world. The impression in terms of procedural rhetoric we are trying to build up with this structure is that personal accountability principles are not only relevant when it comes to the behaviour of the individual. We want to communicate that personal accountability principles have far reaching consequences for the office climate, for the collaboration on division level and for the international communication across the company.

The content of the questions is also grouped around the levels. For instance in the individual level the most basic first response questions and questions behind the question (Miller, 2004) are introduced. In this way the player is introduced to some basic, simple examples that help to facilitate what personal accountability is all about. In the second level a bit more concrete questions from one of the exercises used in the training are taken. By reusing the questions relations are created to other elements of the training, so that the players can put the content they get exposed to into the wider context of the training

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[5] https://scratch.mit.edu/
[6] https://unity3d.com/
[7] https://unity3d.com/learn/tutorials/s/2d-game-creation

(Marklund, 2015). In the third level questions are borrowed from the collaboration category of the card game. In this way a link is created between the two games. This approach is furthered in the last level by using questions from the international communication category of the card game.
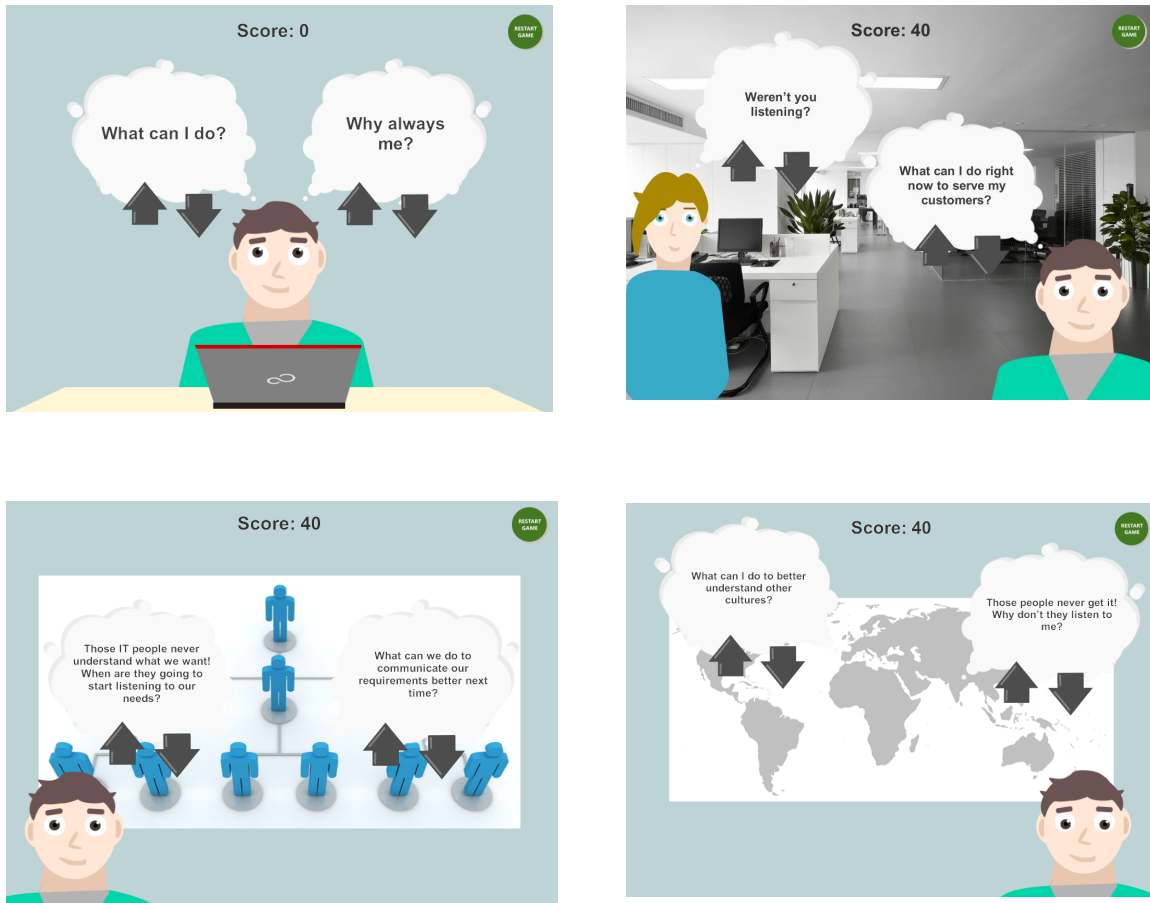
Fig 13. The four different levels in the game

5.1.3 Theoretical Founding

The main purpose of the digital game is to serve as a basic introduction to the concept of personal accountability and the personal accountability training as a whole. The players are exposed to some basic examples of productive and counterproductive questions according to the personal accountability philosophy (Miller, 2004). In that way the players get a first encounter with the concept in a playful, relaxed way. This approach aims to spark interest for the topic and create common ground among the training participants for the discussions to come throughout the training.

The main mechanic of the game - evaluating the questions and receiving immediate feedback in the form of points, sound effects and character animation is based on behaviorism principles (Greeno et al, 1996). Through this immediate feedback we try to reinforce the correct behaviour associated with applying personal accountability principles (Egenfeldt-Nielsen, 2006). While we are aware of the criticism towards teaching approaches inspired by behaviourism, we employ reinforcement for what it does best, namely support drilling (McKernan, 2015; Egenfeldt-Nielsen, 2006). Our goal with the game is not to give a complete experience of all the intricacies of personal accountability thinking, but to make a first impression on the training participants and provide some basic examples in an interactive, interesting form. For that purpose, a simple game based on behaviouristic principles is an approach that has been suggested to be suitable (Egenfeldt-Nielsen, 2006).

We also follow-up the game with a discussion in order to facilitate understanding and reflection (Kriz, 2003; Marklund 2015). Please refer to Appendix II - Post Game Discussion Questions for a full list of the questions used for the post-game discussion.

5.2 Feedback from Testing

The testing of the digital game was carried over together with stakeholders from the company and the supervisor for this master thesis - Adam Chapman.

5.2.1 Intro Clip

During the tests it has been suggested that the game starts quite abruptly without any instructions or context. To address this concern a short video clip was developed that explains the very basics of personal accountability and the question behind the question. Through animation and a compilation of short video clips we provide the necessary basics for the player to understand what the game is all about and to get a feel for what is expected of her in the game.

5.2.2 Level Commentary

In one of the supervision sessions it has been suggested that some extra explanation of the level structure could help clarify the role of each one of the levels. To achieve that a short comment was added to the level completion screen of each level. The goal of that comments was to explain the context of each level for the player, creating a loose narrative throughout the game.

5.2.3 Distribution

The feedback from the stakeholders indicated that the preferred format for distribution of the digital game was an URL link. A discussion with the IT department at the company was initiated regarding fulfilling that requirement, however due to technical difficulties and lack of dedicated resources for further investigating the issue, that way of distribution was singled out. Instead a the game was to be distributed in the training by using USB flash drives. The game was loaded on the USB flash drives before the training and the USB flash drives were labeled with the characters and colours of the game in order to create the feeling that the USB flash drive is the game, evoking associations with classical Nintendo game cartridges. With such an association we hoped to strengthen the game experience.

Fig 14. The Personal Accountability Digital Game pre-loaded on a USB flash drive

6. Project Plan Deviations

The project plan fas strictly followed when it comes to the elaboration and construction phases. The evaluation phase (i.e. the transition phase according to the project plan terminology) however was substantially delayed due to the limited availability of company stakeholders. In order to synchronize this project with the course of business at the company a gap of three months separated the construction and evaluation phases.

The designing card exercise described in 4.2.5 was also not carried out during the game evaluation due to time constraints.

Evaluation

In this section we describe the analysis process and the results of evaluating the project.

The three research questions we address with the evaluation are the following:

- How are our digital and non-digital games perceived by organizational culture training participants?

- Are our games an effective tool for teaching organizational values and attitudes?

- Are our games an effective presentational ritual that overcomes resistance to change compared to lectures and speeches?

1. Training and Participants

The evaluation of the games has been carried out in conjunction with a standard personal accountability training at the company. The facilitators of the training have been involved in the testing as well in order to integrate the games into the training in the most suitable way possible. Together with the facilitators it was decided where in the existing curriculum to place the games, how to introduce them, with what questions to follow them up and how to relate them to other exercises part of the training.

The training consists of a series of videos, pair discussions and classroom discussions of personal accountability and related topics as leadership and organizational culture. The digital game was played in the beginning of the training, in order to serve as a general introduction to the topic of personal accountability and spark interest. The card game was introduced at the end of the training as the last activity in the training.

Two facilitators were sharing the responsibility for conducting the training and the author of the games was engaged with facilitating the games. This was only the second training lead by the facilitators - making it one of the first personal accountability trainings to be undertaken in Sweden in the division in question.

The training participants were a group of AIESEC[8] interns at different stage of their one year internship with the company. AIESEC is a student-driven organization that facilitates internships abroad for students and recent graduates with the goal of promoting international experience and communication. The company has a long lasting practice of employing dozens of AIESEC interns all over the world, however the largest concentration of AIESEC interns is in Sweden. That's why the training was held in Sweden for the 10 current AIESEC interns. The participants come from five different countries - Brazil, China, Colombia, Netherlands, Philippines and have an average age of 26. It is also worthwhile mentioning that the facilitators and the author of this thesis are all former AIESEC interns that have subsequently continued their career at the company. The training was carried out in English.

2. Observation

We conducted an unstructured participant observation during the personal accountability training (Cohen et al., 2013). The observation was direct as the author was present at all times during the training and participating in all activities (Cooper and Schindler, 2001). It was also overt as the research project and the role of the author as a researcher was introduced to all participants at the beginning of the training (ibid). The observations were recorded in the form of a log and presented here as a narrative account (Cohen et al., 2013). It might have been beneficial to conduct a structured observation in order to obtain more detailed data and to strengthen the validity of our results. The reason for not conducting structured observation was the restricted amount of time and resources for this project and that the observation had only a support, descriptive role in the data collection. On the other hand, we didn't want to miss out on this extra layer of qualitative data for the effective evaluation of this project. Our observations provide a description of the context that helps us put the results from the survey and the interview into perspective. We were alo particularly vigilant for signs of engagement attributed to the games that would show into the facial expression, tone of voice, and the intensity with which training participants engage into discussion.

2.1 Results

The training started with an introduction of the agenda and the goals of the training, followed by a personal introduction of each of the participants and their expectations from the training. A handout with the exercises for the day was distributed. The facilitators emphasized the importance of openness in sharing experience throughout the day as many of the exercises were built around sharing personal experience with the topics discussed in the training.

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[8] https://aiesec.org/

After this initial introduction the USB flash drives with the game were handed out to the training participants and they played the game in pairs. Already while playing the game some discussions ensued between the players. In some pairs one player would grasp the game faster and explain to their partner how the game worked. All of the pairs finished the game within 10 minutes with close to a maximum score, so there were no major issues with understanding how to play and what the game was all about.

After all the players were done with the game a short discussion was initiated based on the questions found in Appendix II - Post Game Discussion Questions. The answers of the participants showed they had understood the core concept of personal accountability. On the other hand there were no clear signs of engagement during the discussion. This resulted in a limited discussion with inputs from just a few of the participants.

The training continued with a corporate video on organizational culture, values and leadership. After the video the participants were asked to discuss in pairs questions related to organizational culture, followed with a classroom discussion on the subject in which each participant would share their view. This was followed by an identical discussion on leadership. Those two discussion were to set the stage for the introduction of the personal accountability concept. The facilitator was drawing direct parallel between key characteristics of leadership and personal accountability, in this way emphasizing the importance of personal accountability for effective leadership.

Once the personal accountability concept was introduced by the facilitator the training participants were asked to list their top 3 frustrations at work. This exercise in particular captured the interest of the audience, which could be seen in the elevated tone of voice and the eagerness with which they were sharing their experience. The descriptions of their troubles were rich and the discussion took longer compared to other discussions. Engagement could be also recognized in the fact that everybody was actively listening to their fellow colleagues and was ready to join the discussion with relevant comments. This could be seen in the strong eye contact between the participants and their constant nods of approval throughout the course of this particular discussion.

Then the first of a series of videos by John Miller (2004) was played. Those videos were part of filmed lecture John Miller held for employees of the company in the United States. Short clips from the lecture were used by the facilitators to introduce different topics related to personal accountability.

The rest of the training followed the same patterns described above - a video was played, a discussion in pairs was initiated and content was presented by the facilitator - not always strictly in that order, but each

major part of the training involved those three elements. It has to be noted that after lunch the energy levels of the participants were rapidly dropping which showed in their diminished interest in discussions. Participants would be much briefer in their discussions compared to before lunch or they would quickly divert their conversation into topics unrelated to the training. It is possible that the participants were also getting bored with the concept.

Once all the content was communicated to the training participants the card game was introduced as the final activity for the day. The rules were explained with the rule facilitation aid slide found in Appendix I - Rule Facilitation Aid Slides. It was clear that it was hard for the training participants to grasp the rules in their fullest, due to the lack of questions and comments after the rules were explained. However, they were eager to start the game in order to grasp them, which showed in comments calling for starting to play although the rules were not completely clear. Two groups of four players each were formed[9] and the game boxes were handed to them. 45 minutes were allocated for playing the card game. The author tried to rotate between the groups helping them with the rules, clarifying scenarios and acting as a tiebreaker in cases where the players responses had to be interpreted as correct or not.

We observed that it took the better part of the first 15 minutes for the players to set up the game and get to a uniform level of understanding of the rules. Often players who had a better grasp of the rules would be explaining to their colleagues how the game was to be played. Some advanced rules, such as using personal accountability points were misunderstood or not applied at all in the early stages of the game, however with the help of the facilitator those were gradually applied as well. After that initial period of trial and error deeper discussions started ensuing that were less focused on the rules and more on the interpretation of the scenarios and the responses given by each player. Those were some productive, engaging discussions which could be heard in the tone of voice of the participants and the detail in which they tried to examine every situation.

A further indicator for the player's engagement were their facial expressions. Anticipation and concentration would cover their faces when the scenario was being read. Then the players would show strong excitement and they would laugh every time they would encounter a scenario they had experienced themselves in their practice at the company. Surprise was often displayed once the proposed correct answer was revealed on the back of the card. It was common that players would admit aloud that they haven't thought of that approach at all.

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[9] Two of the training participants had to leave the training before playing the card game. They however played the card game at another occasion with the help of one of their colleagues who had already played the card game during the training.

After 45 minutes of playing the players were still fully engaged with the game, discussing actively, cheering when they had a successful mental discipline roll and booing when they didn't quite make it. We had run out of time, however and we had to call for the last round. The winners were proclaimed and we had a post-game discussion based on the questions from Appendix II - Post Game Discussion Questions. This time the discussion was much more intensive compared to the discussion we had had after the digital game. More training participants joined the discussions and their answers were much more specific and detailed. They were more then happy to reflect on the experience they have just had and keen on sharing the thoughts they had during the game.

Fig 15. Finished Personal Accountability Card Game

The training was concluded with a summary of the core personal accountability principles reviewed during the day. The participants were also given the opportunity to share what they had learned throughout the training and how they could implement it in their working life.

2.2 Discussion

While the digital game sparked some interest in our training participants at the beginning of the training, the general impression was that they didn't have much to say during the post-game discussion. This could have been because the game was quite straightforward and there wasn't much to say about it in terms of reflection. An explanation that gets further confirmed by the survey and interviews data.

The card game achieved a much higher impact on the training participants. From the descriptions in the previous section we can clearly see that their response while playing the games was highly positive. Through the game the players were given the opportunity to put into practice all they had learned in the training and they were enjoying it. We have to also consider that the game evoked such a strong positive response in the players in spite of the fact that the energy levels were low and the interest into the training had been diminishing just before introducing the card game.

We could also see great displays of collaboration in explaining the rules to each other and helping each other to master the game. While we can't draw a direct link between the positive response to the card game and learning, the productive discussions seemed to facilitate learning through the exchange of different approaches to tackling the situation between the players - in line with the socio-cultural learning theory principles on which the game was build (Marklund, 2015). The scenarios also looked well suited as on a number of occasions the players expressed full identification with them.

The rules, however proved to be a bit of a hurdle for the players and the whole experience of playing the game could benefit from better explaining the rules. Furthermore, the time spent playing the game turned out insufficient to fully complete the game.

3. Survey

We have established four major objectives for conducting the survey and the interviews based on the research questions we introduced at the beginning of this chapter:

- Establish attitudes towards using games for teaching in a corporate context
- Establish preferences between digital and non-digital games.
- Establish attitudes about the effectiveness of using games for teaching personal accountability
- Gather ideas for improvement of the games part of this project.

The survey is comprised of four main parts. First we introduce scale questions that directly aim at evaluating the self-reported learning and engagement effect each of the games had on the training participants. In the next part we ask questions that help us evaluate the games in relation to each other and the wider context of the training. Next we focus on evaluating attitudes towards the importance of organizational culture and compare the effectiveness of games and lectures for teaching organizational values and attitudes. Lastly we gather gender data, age data and offer an opportunity for extra comments.

We used a combination of scale, multiple choice and open questions in the survey. In our case the sample size was determined by the amount of participants in the training. Our goal with the survey was not to gather statistically representative data, but rather simply to evaluate this particular educational intervention and provide further results to support the interpretation of our primary source of data, namely the interviews. When it comes to gender the sample was balanced. When it comes to age, however we see that all participants belong to the range of 24-29, thus all the conclusions in this evaluation can't be directly extrapolated to other age groups and perceptions of the games could vary. The survey is web-based, it has been designed using Google Forms in order to enable self-administration and distributed to the participants via an URL link directly after the training (Cohen et al. 2013). As per Cohen et al. (2013) visual images were added to the survey and a simple, concise structure and visual design were used, in order to reduce premature dropout from the survey.

3.1 Results

3.1.1 Scale Questions

We received 8 responses to the survey out of 10 participants to which the survey was sent out. We present below the results from the scale questions in terms of average, standard deviation and mode. All scale questions are evaluated on a 1 to 5 scale, where 1 indicates "Not At All" and 5 "Very Much".

	Average	Standard Deviation	Mode
How engaging did you find the digital game?	3.875	1.47	5.00
How much did you learn from the digital game?	3.75	1.22	4.00
How did you like the design of the digital game ?	4.25	0.84	5.00
How did you like the digital game overall?	3.625	1.21	4.00
How engaging did you find the card game?	4.25	0.75	4.00
How much did you learn from the card game?	4.25	0.63	4.00
How did you like the design of the card game ?	3.875	1.21	5.00
How did you like the card game overall?	4.25	0.63	4.00

Table 1. Scale questions from part 1 of the survey

	Average	Standard Deviation	Mode
To what extent does organizational culture affect our success as a business?	4.875	0.41	5.00
To what extent are organizational culture and performance related?	4.875	0.41	5.00

How effective are lectures about organizational values for promoting organizational culture?	3.875	0.52	4.00
How effective (1-5) did you find games for teaching organizational values and attitudes before today's training? [Games Overall]	4.375	0.41	4.00
How effective (1-5) did you find games for teaching organizational values and attitudes before today's training? [Digital Games]	4.375	0.41	4.00
How effective (1-5) did you find games for teaching organizational values and attitudes before today's training? [Non-Digital Games]	4.375	0.75	5.00
How effective (1-5) do you find games for teaching organizational values and attitudes after today's training? [Games Overall]	4.375	0.41	4.00
How effective (1-5) do you find games for teaching organizational values and attitudes after today's training? [Digital Games]	4.5	0.52	5.00
How effective (1-5) do you find games for teaching organizational values and attitudes after today's training? [Non-Digital Games]	4.25	0.63	4.00

Table 2. Scale Questions from part 3 of the survey

3.1.2 Open Questions

In this sub-section we provide a short summary of the answers provided by the survey respondents to the open answer questions.

When asked what they liked most about the digital game the participants emphasized its role as a good introduction facilitating understanding, the easy rules and the music. On the other hand most of the respondents found the digital game too easy and straightforward - *"It turned kind predictable after a few questions."*.

When asked what they liked most about the card game the participants emphasized the interaction between the players, the engagement that follows from that interaction, the discussions that result from the gameplay, the scenarios, and the fact the game makes the players think. On the other hand the respondents mentioned difficulties with picking up the rules and the open nature of the scenarios as something they didn't like about the card game - *"The rules were not clear or maybe it was more complex than it needed to be."*.

When asked what the games contributed that the other training activities didn't the respondents have mentioned fun, engagement, competition, opportunity to put the learned content into practice, stimulating thinking, discussion and remembering the content better. Suggestions for improvement revolve around what was named as downsides of the games namely - making the digital game more advanced, explaining the rules for the card game better or simplifying them and providing a more specific rule for deciding which answers are right or not.

When asked for overall feedback on the training the participants have expressed their satisfaction with training as a whole.

3.1.3. Multiple Choice Questions
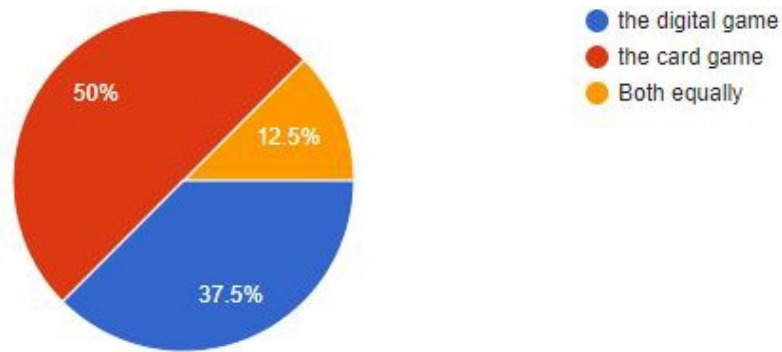
Fig. 16 Results for the multiple choice question - Which game did you like better?
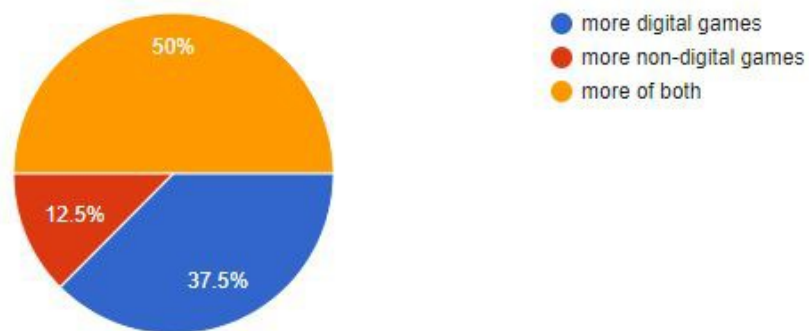

Fig. 17 Results for the multiple choice question - Which game did you like better?

3.2 Discussion

We use basic descriptive statistics measurements such as average or mean, standard deviation and mode for analyzing the data obtained from the scale questions (Cohen et al. 2013). The open answer questions we discuss in the light of the learning theories introduced earlier in this thesis. Finally we interpret the multiple choice questions.

3.2.1 Scale Questions

First of all we can see from the mode (4-5) and the high average score - no average scores below 4 rounded-up - that both of the games were overall much to very much[10]   accepted by the training participants.

The digital game has received slightly lower average scores than the card game, whereas the overall score of 3.625 for the digital game represents the lowest score among all questions. This suggests that the digital game was somewhat less effective than the card game in engaging the players and facilitating learning according to the participants self reported responses. This result can be related to the players comments that the game was too easy and simple However, the higher standard deviation for the digital game scores shows that opinions varied between participants, with the largest standard deviation among all questions displayed for the engagement of the digital game. On the other hand the digital game scored better than 4 for design, suggesting that the game was visually appealing and easy to use.

The card game outperformed the digital game in terms of engagement, learning and overall score. The standard deviations for the card game related questions are also much lower than those for the digital game which shows a stronger consensus among the participant's responses. An exception is the score related to the design of the card game. Although, still scored as 4 rounded up the score is lower than the scores for the card game in the rest of the categories and displays a stronger standard deviation. The mean on the other hand is 5 which leads us to the conclusion that this somewhat lower score is due to a few outlying low scores. In other words, the reason for this score could be that the design was very well accepted by most participants, but didn't appeal to a few.

The questions related to organizational culture received the highest scores and the lowest standard deviation among all question suggesting a very strong perceived connection between organizational culture, performance and the company's success as a business. It is important to mention that the survey

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[10] The scale used was 1-Not at all 4-much, 5-very much etc.

responses were anonymous. When it comes to the effectiveness of lectures and speeches as means of promoting organizational culture the participants were less convinced in their suitability. The score for this question was one of the lowest (although still 4 rounded up) and most importantly with a comparatively low standard deviation. The effectiveness of games in general on the other hand was scored higher both before and after the training. In a matter of fact the scores for before and after the training were almost identical. This suggests no major change in the perception of game's effectiveness as a whole as a result of playing our games.

3.2.2 Open Answer Questions

The criticism expressed by the players regarding the digital game falls in line with the criticism expressed towards games based on behaviouristic principles - namely overt simplicity, tediousness, lack of engagement (McKernan, 2015). In a way such criticism was expected - the game was meant to be simple as per its initial design. Its main goal is to serve as a way of introducing the basic concepts from the training in an interesting interactive way - a goal that has been achieved suggested by the response on the advantages of the digital game. Nevertheless, it is clear that the digital game falls short of the participants expectation in terms of gameplay sophistication, which results also in the lower scores on engagement and learning described and analyzed in the previous subsection. Regarding this matter it is also interesting to mention that the straightforwardness of the game was mentioned as something one of the participants liked most about the game and as something that one didn't like about the game by another participant. This shows us how achieving a positive effect on the user is all a matter of balance in finding the right level of simplicity that matches the educational goals set for the game. What we also learn from the survey feedback is that we could have communicated the educational goals of the digital game better in turn setting the expectations on it lower. Because the educational goal of the digital game is quite humble - its only purpose is to provide a basic introduction to the concepts studied in the training in an interactive matter. In a way it doesn't have the goal to facilitate learning in its own right, but to spark interest for learning through the other elements of the training. It also provides a vivid point of reference for the basics of personal accountability to the training participants.

When it comes to the card game our goal to induce productive discussion through the game and thereby learning based on socio-cultural theory has been successfully accomplished as it becomes evident from the survey responses to what the participants liked most about the card game - *"learn from others", "discussion", "interactivity", "each player can express his or her personal answer to every situation", "It requires discussions so it leads to powerful insights".*

Those results could have been also affected by the facilitator of the games, thus further research is required to account for this variable. Evidence for the positive impact of the cognitive elements of the card game is also present in the responses - "It really helps you understand the topic throughout the given examples", "thinking game", "the scenarios in the cards". Thinking how to solve the challenging scenarios does not only facilitate learning, but is also perceived as enjoyable by the participants.

On the other hand, we learn from the responses that explaining the rules of a more sophisticated game such as the card game is a major hurdle in the classroom - *"the points counting system requires more explanation at the beginning to better understand the dynamics of the game", "The rules were not clear or maybe it was more complex than it needed to be"*. To address this challenge some of the respondents suggest simplifying the card game. So, the question arises how can one simplify the game in such a way, so that it doesn't lose its benefits. A similar dilemma is presented by the comments regarding the way answers are evaluated as right or wrong - *"Just the fact that some questions are subjective so it's hard to measure if the answer is right or not.", "The judgement on how close the answers of each player from the prescribed answer written on the card can be very subjective."*. The very mechanic - open answers - that facilitates discussion and thinking (Marklund, 2015) - elements of the game pointed out as positive by the respondents are also being criticized because of their fuzziness. This paradox is well displayed in one of the proposed solutions by the respondents - "The cards could have an A, B, C and D options as answers, the answers were too open".

In the responses to the question "What did the games contribute to training that the other training activities didn't?" we see an overlap with the advantages of educational games identified by McClarty et al. (2012) - engagement - *"makes the training fun and attractive", "engagement and activating your brain. Improves remembering everything", "Perfect tool to be use in team Buildings to bring up more engagement (...)"* - problem solving - *"Putting on practice the lessons and the topic we were discussing", "Putting you in the scenarios that we want to avoid or promote", - collaboration - "It leads to conversations.", "Perfect tool to be use in team Buildings (...) to add more interaction about the training topic!"*.

3.2.3 Multiple Choice Questions

We use the multiple choice questions to compare impressions among the respondents of the games part of this project and to evaluate preferences between digital and non-digital games for future training.

The majority of the respondents liked better the card game and that result is understandable given the greater grade of sophistication of that game compared to the digital game. However, the difference in

terms of preference is not that large, suggesting that the digital game in spite of its simplicity is still the preferred game for a sizeable part of the respondents.

When it comes to future preferences half of the respondents would prefer to have both digital and non-digital game, while close to 40% would prefer digital games, only one respondent has claimed she prefers a non-digital game. This result on the one hand represents a strong demand for more digital games in future trainings. On the other hand, the fact that the majority of the respondents don't discriminate between the two formats, suggests that the medium of the game might be of a secondary nature as long as the game addresses relevant educational needs and is well designed.

4. Interviews

In this section we present the results from our primary data collection activity - the semi-structured interviews (Cohel et al. 2013). We have based the questions closely on the questions used in the survey in order to enable comparability. This approach allows us to get broader and in some cases quantifiable data through the survey and detailed, high resolution accounts through the interviews.

Due to the semi-structured nature of the interview questions were often paraphrased by the interviewer to facilitate better understanding of the questions on the side of the interviewees. In turn, this approach was supposed to evoke better quality answers. Also some questions were skipped or only briefly discussed, in case an answer to them was already given when discussing another question. The semi-structured format of the interview also allowed us to probe deeper into areas of interest that emerged dynamically in the course of conversation (Cohen et al. 2013).

Most of the questions were open-ended in order to allow the freedom of answer necessary to provide us with detailed qualitative data. However, we also asked the interviewees to give an answer on a scale of 1 to 5 in order to concretize their answers in the last part of the interview related to organizational culture and the perceived effectiveness of games and lectures for teaching organizational values. The questions are organized in three sections just as the survey questions. The main difference being that the scale questions in part one have been replaced with an open answer equivalent questions.

Four interviews were conducted in total - one with a facilitator and three with training participants. The interview questions for the interview with the facilitator were only slightly adjusted in order to take in account the difference in role and perspective. The interviewees were selected on volunteer basis after the training.

At the start of each interview the interviewees were informed of the purpose of the interview, their permission to record was obtained and their anonymity confirmed. The Swedish Research Council codex for research on humanities and social sciences was followed to ensure anonymity and the confidentiality of personal data (CODEX, 2016). The names used for reporting data are just pseudonyms and not the interviewees real names.

Just as with the survey we don't claim any generalizations with the below results. What we try to do however is to get as comprehensive of an evaluation as possible of this particular educational intervention and provide recommendations for improving it and other similar interventions in the future.

We use thematic analysis to organize and report the interview data (Mills et al., 2010). This method of analysis allows us to spot patterns in the qualitative data related to our research questions. The first three themes we use are directly related to our research questions and the final one, ideas for improvement, is related to concrete suggestions for improvement of the games and their implementation. The way the analysis was conducted is the following - the transcripts from the interviews were colour coded in order to sort the collected data in one of the below themes. We present the results of the thematic analysis and we discuss them in the light of theoretical background outlined in the literature review section of this thesis.

4.1. Attitudes towards Digital and Non-digital Games

In this subsection we mainly review the interviewee answers to the questions "What did the games contribute, that the other training activities didn't?" and "Would you like to see more digital games or non-digital games used in trainings in the future and why?", but we also report on results from other questions as long as they match the theme.

4.1.1 Games as Tools for Practice and Problem-Solving

The most common pattern when it comes to attitudes towards both digital and non-digital games was the attitude that games are a good tool for facilitating problem solving skills and putting into practice the knowledge acquired during the training. This pattern coincides with McClarty et al.'s (2012) claims for the potential of games for facilitating problem solving skills.

Excerpt 1

The games provided you with real life everyday scenarios. I think that was the small difference with the other activities we did. Because it was really interesting to define those scenarios and the try to come up with a different approach, you know? Since they are everyday scenarios we are usually like come up with the same way to approach them. Now I am doing the workshop and we are learning a different way to find solutions. I think that was very positive from the games.

Here a more detailed explanation can be found for the survey findings related to the scenarios used in the cards. In the survey the pattern was established that a number of the respondents found the scenarios in the card game as a positive element. In Excerpt 1 the focus is on the reason why those scenarios were so good, namely because they were realistic. Providing relevant to the company's context scenarios has been a design goal from the beginning. In that way it is aimed to enable identification with scenarios on the part of the players, which in turn would transform into credibility of the examples. By taking the scenarios seriously the players also would think more seriously about them, which contributes to a more engaging and meaningful problem solving experience. This finding also matches the observation made during the card game that players had a strong positive emotional response to scenarios they themselves had already encountered in their own practice.

In Excerpt 1 the interviewee emphasises the role of realistic scenarios in the games that strengthen the problem-solving experience provided by the games. In Excerpt 2 the respondent focuses on how the card game did well at making her think and discuss, displaying aesthetics of reflection as we have planned when designing the card game based on cognitive and sociocultural learning theory principles.

Excerpt 2

It made you think much more, because when you have like this question you are starting discussions with the other person, your buddy straight away and then just talking. You come up together with a solution or with what you think. It is more like opinions or feelings. With the game it is more like you really need to think, first give the answer and then you can discuss, which I think is much better to … you really start thinking and acting on it yourself instead of just having a discussion with you buddy and just discussing it each other.

The attitude towards games as tools for practice and problem-solving can be observed also in Excerpt 2 where the interviewee explicitly contrasts the discussions in other exercises and the discussions part of the card game. In the exercises prior to the game the discussions are described as mere sharing of opinions often resulting in a consensus. During the card game on the other hand the discussion is preceded by a call to each player to come up with their own answer. In this way the players are encouraged by the rules to

think for themselves first, before they engage in a discussion. The discussion that results has a clear purpose - establishing which answer is closest to the one depicted on the back of the card. Furthermore, in this process of negotiating the right answer the critical thinking of the participants is called upon, as not all answers would match the scenario well and they need to challenge the answers of other players in order to differentiate between bad answers, good enough answers and great answers. In that way more meaning is added to the discussion which translates into the observation of the interviewee of the discussions during the card game as more beneficial.

Excerpt 3

I think (the card game) gave an opportunity to actually evaluate myself on this topic. In 30 min I was evaluated and was thinking about myself, my personal accountability level. So, yes, the game gave me this opportunity and was very different than the discussions we had.

In Excerpt 3 the respondent emphasizes the possibility to test ones' knowledge through the card game by using the verb "evaluate oneself" when responding to the question what was the added value of the games. A further contrast to the other exercises and discussions during the training can be seen Excerpt 3. The interviewee clearly perceives the card game as a test, as a challenge, as an opportunity to put one's own understanding to the test. An activity that results in clear, measurable outcomes in the form of moving forward or backward on the game board. An opportunity not available through the other exercises and discussions part of the training. This element of measuring one's results and comparing them to the results of the other players add further meaning to the game and thereby a more meaningful context to the discussion part of it (Marklund, 2015).

In Excerpt 4 the respondent continues her description of her experience playing the game by quoting one of her fellow players. The focus here is again on the aesthetic of reflection and thinking as a positive experience contributing to learning.

Excerpt 4

And I agree with what one of the other participants said… she said, while playing the game I was evaluating and thinking, how I did approach these situations I had before. I could say I was ok, I wasn't ok, I did this and then this, so yes, I agree totally with what she said.

We see in action a very interesting account of learning through the designed problem-solving opportunities provided by the card game. By comparing past experience with the present gameplay

experience the players integrate the new approaches acquired while playing the game with their prior experience.

4.1.2 Games as Sources of Engagement

Excerpt 5

If you want to make a training more interactive and interesting this kind of digital games can be good tools. Yes, yes, of course… We can have the board game in a digital application. Yes, they are very welcome.

In Excerpt 5 we also see some evidence for our next broad pattern. This pattern, especially inspired by our card game, is the attitude that games spark strong engagement. We can spot this attitude in Excerpt 5 when the respondents suggests that a combination of our card game concept and a digital format can make a training more interesting and interactive, which is synonymous with creating engagement with the topic. Engagement is also one of the advantages related to the usage of educational games McClarty et al.(2012) cite in their work.

Excerpt 6

I:What did the games contribute that the other training activities didn't?

I would say definitely dynamism, fun, interaction, energy. Let's say those are the main four ones that come to my mind. But especially the dynamism and interaction, because the other activities were more like reflection, giving insights, having discussions, but this one was more like a dynamic activity. I would say this was the biggest contribution.

In Excerpt 6 we find further strong indications for the games providing strong engagement. We also see some evidence for our previous pattern - the games as a "dynamic" activity in contrast to the rest of the training activities, which are perceived as more passive and reactive.

4.1.3 Games as Novel Educational Tools

Another attitude, that is in a way also related to engagement, was the attitude towards games as something novel in the company's educational toolbox.

Excerpt 7

Like the trainings I have been to and the workshops what I have seen is that they are very much about the speaker delivering the content and of course different activities. So, the participants digest more the content, but I have never seen like games and then when you say games, the word itself kind of makes you think of something childish - Oh, what are we gonna do… games?! Just thinking like, the senior managers, like we are going to play a game?! But then it is the magic a bit, if something is new or so different and I think that is exactly what we need for trainings and what we need for …. Something disruptive, a wow-factor as we call it in AIESEC. For me the games were the wow-factor.

We can also see how the novelty factor argument was preceded by expressing doubt in the effectiveness of games as tools for learning. This account uncovers another perceived attitude towards games, namely that they are something not serious and are rather a form of play meant for children. This is a popular preconception about games, namely that games are devoid of meaning and just serve as an enjoyable pastime activity (Bogost, 2011). That's why the suggestion of the interviewee to test the game with a training group consisting of people who are more likely to hold this preconception about games is a fruitful topic for potential future research.

On the other hand, we learn from some of the other participants that they have used games in other trainings as well. In one of the accounts those games were not perceived very positively, the disappointment stemming from the fact that the games didn't feel like games at all.

Excerpt 8

I: That is a really good point. You mentioned that you played some game like this in some other training. Can you tell me a little bit more in short?

D: No, not like this but … I don't remember, but the games I have played are more like a questionnaire game, you discuss it with other people and then there like tough questions and ….
The thing is that they probably sell it as a game, but in the end it is not like a game - it is like a homework man. Then you pretend to play with your answers, but it is not the same. But they try to make it like a game. But we are tired and just want to go home.

The other account however is quite positive - the interviewee even draws a parallel between the positive experience of playing the card game and the game played at another occasion.

Excerpt 9

Whit actively doing that stuff it is much better and also HOS trainings- they have so many game elements and it really makes you think. They have this catapult thing and then it is about understanding that so many small factors will… make that something is working or something is not. You understand that there are so many elements involved. And in this game you are working together with people and then you really understand how many different situations, it is not just easy to understand what the problem is or what the solution will be. That really makes you think and I still remember that task. And it was just a catapult, just pick a ping-pong ball and shoot it and that was it, but still you know that by doing that how many different kinds of problems you are running into. I think also with this (card) game you think about … next time you get a problem you think… Oh, this game… there were different kinds of answers and you will still know the first response answer, because oh, that was actually quite bad, it was a bad situation. Maybe you didn't know exactly the good answer, but you still think about it what will be a good reaction to it.

From Excerpt 8 and 9 we learn that games can be both good and bad tools for learning depending on the way they are designed and used. In one case a game played in another training (Excerpt 9) is described as creating a strong experience through clever design and team work - corresponding to one of the core purposes of educational games - experiencing values and abstract concepts (Linderoth, 2014). In the other case (Excerpt 8) the game the interviewee was exposed to at another training is described as tedious and boring, while the reason for the bad experience is attributed to barebones game design. The interviewee even suggests that the activity was not a game at all, but was only presented as a game to make it seem more attractive. This finding shows us how important it is to be honest with the training participants when introducing games into the curriculum, as there are certain expectations related to games. When the expectations are not met this causes confusion and disappointment - aesthetics that no training facilitator would continuously like to have in their classroom. It also reminds of the criticism of Bogost (2014) towards gamification, as gamification also sometimes tries to capitalize on the positive expectations associated with the game label.

4.1.4 Preferences between Digital and Non-Digital Games

When it comes to preference between digital and non-digital games two of the respondents don't express a preference, one respondent prefers digital games and one non-digital games.

Excerpt 10

Well, I would say it is hard. 50-50. But I go more into non-digital games. My reason is that, if you have digital games they are way easier to share with other people, you just need a laptop and that's it. But the it is more like we are every day in the laptops... I think the card game brought a different perspective, because it was completely different, like people were forced to talk to each other, like to interact with each other, like to speak out loud. That is definitely good, it breaks the routine that everyone has on a daily basis, So, I think it was very good. I would go more towards the non-digital games, but of course the digital games are still very valuable - easier of course to manage, rather than the card games, because you need to make sure the boxes are in place, all the materials. It also brings more effort to the facilitator and the people, but then after that it is very good with those non-digital games.

Excerpt 10 provides us with a very interesting account of the perceived advantages and disadvantages with digital and non-digital games. We find out that non-digital games can be used to contrast with the highly digitalized working space, typical for employees at the company. On the other hand the logistical difficulties related to producing and facilitating a non-digital games are presented as a disadvantage.

In general, the respondent's preferences fall in line with the fact that there is no clear best format when it comes to educational games, found in the literature (Linderoth, 2014).

4.2 The Games' Effectiveness for Teaching Organizational Values

In this sub-section we present excerpts demonstrating the effectiveness of our games in terms of overall impression, engagement and learning.

4.2.1 Overall Impression

The interviewees were quite consistent in their overall impressions of the digital game. Overall their impressions were positive - they saw the digital game as a *"good start", "good warm-up", "good introduction, a way to begin",'like a starter"* it *"served as the opening"* and with its help the participants could *"understand better what was, like, this course topic"*. From those comments we can see that the digital game served it intended purpose, namely to give the participants a basic understanding of the personal accountability concept and introduce them to the basic principles taught in the course. In Excerpt 11 again we see a reference to the relevance of the content of the game, just as we saw in Excerpt 1.

Excerpt 11

That was what I liked the most - with real examples the game explained the topic.

The design of the digital game was also appreciated. We also find here some evidence for the appropriateness of the idea to add an introductory short video as part of the game.

Excerpt 12

The graphical design in the digital was good - I liked it starting with the initial video.

On the other hand all interviewees agreed that the digital game was *"too easy", "very predictable", "very straight-forward"*, with one participant perceiving the game rather as a questionnaire than a game.

Excerpt 13

About this game - it was very straight-forward and for me it wasn't a game indeed. It was more like to review a couple of questions and answer which one is correct. For me it wasn't a game, it was more a questionnaire. Trying to guess the answers.

This critic matches the critic to the digital game we saw in the survey solidifying the fact that the game might need some modifications in order to balance the challenge level or a better setting of expectations for this game.

When it comes to the card game the participants liked the discussion element and the thinking element in the game. They described it as more active and more complex than the digital game - a good way to put into practice what one has learned at the end of the training through real life scenarios and share ideas. The game was also perceived as fun with the fun directly related to competitiveness, challenge and surprise from exploring the contents of the cards, which is in direct accordance with our aimed exploration aesthetic. In general the above impressions directly correspond our intended effect with the card game build on cognitive and sociocultural learning theory principles.

Excerpt 14

And it is also fun, it is still competitive, so fun. Fun to play the game. (...) And it was fun to sometimes switch to these events that randomly happen to give a little bit more fun to the game as well.

In Excerpt 14 we see how adding the event cards a design adjustment from one of our initial tests was also successful in achieving its goal, namely to add variety to the game and thereby make the game more fun.

The game was also perceived as clear and simple enough to fluidly play once the rules were grasped.

Excerpt 15

It is an easy game to understand, if you go through it once it is really easy to understand.

Excerpt 16

And regarding the card game the design is really good. Everything has a… the points system, the way you count them, then with the dice and the points on the cards. I think that has been very well structured, so I like it. I could notice that there was a lot of work behind that. (...) Once you learn the games it's not that hard.

Excerpt 17

About the game and how it went though the time, I would say it was simple and that's important - once you start you get it - you need to do this, there are the cards, the questions, the answers… yes. That was very straight forward.

The comments in Excerpts 15,16,17 leads to the conclusion that the card game does not need any major design simplifications, but rather explaining the rules better and more support while playing the game.

This is a great example how our qualitative interview data helps us understand the problem better. In our survey data we saw suggestions that the card game was perceived as complex by some players, but what we couldn't get from the survey data was the reason for this experience. Was the reason the fact the game was too complex or the rules had to be explained better and more facilitator support had to be offered? With the help of the interview data we uncover that the game in itself is not more complex than it needs to be, but we need to do a better job at explaining the rules by dedicating more time to that activity or

coming up with a more efficient way of facilitating the games. Below we found direct support for that conclusion.

Excerpt 18

Just the instructions, I saw they were quite lost in the beginning. I don't know if it was because they were tired, like their attention was already low, but then when they got it because of your explanations it was very good.

This observation is in line with the strong focus on facilitation found in Linderoth's (2014) work.

4.2.2 Engagement

In this subsection we present findings that show us how engaging the games were for our interviewees and why.

In Excerpt 19 we get the account of the training facilitator when it comes to the engagement produced by the games. The facilitators observation matches our observations presented earlier in this work.

Excerpt 19

I: Next question were the games engaging for the participants?

A: Yes, I think they were very engaging. Dynamics, I mean, it is something very new, it is not boring like, I mean I have been to QBQ trainings and they are awesome because the topic itself is very interesting, but the game was a great added value. Because it brings a different environment, it's like a fresh activity. I think it was very engaging definitely.

The rest of the respondents confirm the above observation with their responses primarily concerning the card game.

Excerpt 20

Yeah… So, the first game I didn't find that engaging. But the board game for it was really engaging and it was also challenging as well. So that was good - the first game was too easy - I guess.

We can see a direct parallel between the perceived challenge level of the game and engagement in Excerpt 20. In Excerpt 21 we find further confirmation of this result.

Excerpt 21

Like to be honest the digital game was very predictable. For me it wasn't engaging, yeah. I mean we were doing something, but it didn't catch my attention much. But the physical was for me very engaging, because at least the questions and the scenarios are very realistic. You can really see yourself in those moments. It was really engaging, because it is good to see, I mean it is good to think in a QBQ approach for each of those scenarios, but it is also engaging cause you really want to know , like what is the answer of the game for those scenarios.

We see engagement stemming from the realism of the scenarios and the curiosity sparked by them. We have been designing the card game exactly with those effects in mind. We observe our exploration aesthetic manifest itself once again. The digital game on the other hand is not perceived as particularly engaging as we see in both Excerpt 20 and 21 - with the lack of engagement attributed to the lack of challenge in the digital game. We see a match with the criticism on behaviouristic games (Bogost 2011a, McKernan, 2015), that they tend to turn out too simplistic and that points as a reward don't produce engagement in their own right, especially when lacking context to provide them with meaning.

In Excerpt 22 we see one of the interviewees contrasting the card game with other games he has played before. He presents the card game as engaging and explains why it managed to engage him and why the other games he has played in trainings didn't. This account is related to Excerpt 8 where the interview was explaining how often various exercises are being introduced, but fail to spark engagement due to their week design.

Excerpt 22

Because I have been to other workshops before and the games are very predictable, easy. They are this kind of games you don't even have to think or maybe it is a kind of game that makes you think aloud , because at the end of the session you are tired, you want to finish - if you want to play you want to play something fun and engaging and at the same time it is (intelligible). But there are games that are all about writing and writing answers and explain everything, you know, it's like doing homework and I really hate that because you have spent the whole day in a training and you have to like do all this, so I think that a game makes the perfect balance. It is like a good activity at the end of the training when you

are also tired and you have to think, but not that much. It is like at the perfect level and it is not becoming like doing homework " I am tired, but I need to do this". It is very demotivational. It is the opposite with your game, since you just need to provide ideas on how to get an approach and solve this situation and the game is engaging, and you have points. And you have the other ones that are playing with you and maybe you want to win this time. It is good - you have to think, you have to come up with good ideas - the effort is not that much to make it like boring - "oh, I don't want to play this, I am tired and just want to go home".

There are a number of interesting findings in Excerpt 22. First we learn that the design of a game is very important for its success and for it sparking engagement. Just calling an exercise a game or using a game doesn't guarantee engagement. The way the game plays matters - competition matters, interacting in a group matters, original game mechanics matter, being challenged matters. All those factors are listed by the interviewee in the above account.

Competition and challenge were mentioned in the context of engagement by one more interviewee as well.

Excerpt 23

When you try to answer this question - because you have all the time, try to put yourself in this situation - that was very engaging and challenging. I am very competitive, I like competing with myself. What is the right way I need to act? You don't think about answering the question, you think about what is the right way to behave. So , that was very engaging and you really connect with yourself. That moment - what should I add? Yes, very engaging.

Sometimes I stood there thinking for two minutes, oh, what should I do? And there are many ways to do it - sometimes you think - what is the best way to approach this situation. So, you really challenge yourself thinking about that kind of questions. That could be really challenging or at least for a person that is very self aware or takes this kind of things very seriously. But for me some questions were very challenging, very challenging.

I: Was that a good thing or a bad thing?

That was a good thing - this is the idea. It doesn't make sense to have a very straight forward game - to have the questions, the answers in this game.

In Excerpt 23 we get a detailed account of the interviewee's experience when playing the game and how it creates engagement. A particular emphasis is put on self-reflection in this account. It reminds us of one of the key purposes of using educational games according to Linderoth (2014) - experiencing values and abstract concepts. In Excerpt 23 we find evidence for successfully producing this effect with the help of the game. We also see evidence for our reflection aesthetic in action.

A further account from the facilitator connects engagement to the graphical design of the card game as well.

Excerpt 24

The card game - in terms of reaction I think it was very positive. Actually I just heard that it really looks like a card game that you buy already you know assembled and everything. It looked super professional, so they got a good first impression - with the boxes, the very nice design, so that was nice. Visually it attracted them. Ok, I want to see and also the cards. So that was very positive.

The idea being that the visual design of the card game played a role in producing engagement. And that was the goal with focusing on providing as good an esthetical feel to our games as we were capable of.

4.2.3 Learning

In this subsection we examine the respondents accounts of perceived learning that occurred while playing the games. Overall the interviewees perceived the card game as having a strong learning effect and the digital game a minor one. It is important to mention that all accounts of learning presented in this section are self-reported and thus might not coincide with the actual learning the games induced. In order to measure the actual learning objectively we should have had a control group and we should have measured the training participants knowledge before and after the training. However, such a research design was not feasible due to the restricted time and resources attributed to this project.

A big contribution in terms of learning comes from the discussion and the negotiating mechanic part of the card game.

Excerpt 25

About the card game I really liked that you started discussing with other people. Everybody sometimes thinks about it a little bit differently even, if you all meant it positively. You will think: "Oh, you would respond it a bit differently". Then you kind of are coming to a common sense conclusion, like, you kind of meant all the same, but it is a little bit different in the way of responding to it.

Excerpt 26

I liked more the card game. It is because it wasn't a passive thing - it was an active game. Not only was I thinking about the answer, but the other players were also thinking about them. Like, I could see how the other people are also thinking about the problem. Not only because I could be right and the others wrong, but it is because the others are right in a different way, it's like getting to know different ways to approach the problem.

Excerpt 27

The game is effective, because as I have explained, and at least in my case I reflect and I think about all those situations similar to the ones the game was talking about. It is effective and because you have the opportunity to talk with your game partners about situations and those questions. It is effective. I don't how much - it depends on the game, but talking about the board game it is totally effective. The digital game not sure, how much, but it wouldn't be so much. But the board game yes, that gave me a lot.

In Excerpt 25,26 and 27 we see how the players acquire different perspectives on the scenario by playing the game. They get to learn from each others responses in line with sociocultural learning theory and through deep reflection and reasoning in line with cognitive learning theory.

We see again a focus on the content of the scenarios and their relevance as an important factor for reflection, thinking and in turn learning.

Excerpt 28

I: Great. Did the games help you learn and in what way?

Yes, because the situations you set, everynone experienced them in one way or another. So that is why it really makes you think about the game, like really… hm how can I explain that … it really made me think. I told you about this First Response[11]. You think that in your mind, but you don't say it somehow, but everyone thinks that of course. Even some were quite extreme - I was like oooook… but still it was really difficult to get what will be the right action though. It was towards that, but not the whole way - how you should do it, I guess and what probably gave you the most results as well.

Here we also get a hint on the role of a right level of challenge for learning. This finding is very much in line with cognitive learning theory which postulates acquiring knowledge through reflection and solving problems of balanced difficulty (Greeno et al, 1996; Egenfeldt-Nielsen, 2006; Marklund, 2015). In Excerpt 9 we see a further description of the learning experience the interviewee had with the card game. The interviewee explains how the card game helps her remember better the personal accountability concepts by associating them to the scenarios.

We also see learning associated with thinking out of the box thanks to the card game in the next excerpt. This experience is also contrasted to the perceived lack of thinking and thus lack of learning when playing the digital game.

Excerpt 29

I: Great. Next question is: Did the games help you learn and in what way?

Yeah, I think that the game pushed us to think out of the box so to say, so I think that it helped me in that way that you shouldn't just take a regular approach where you defend yourself and create this excuses we were mentioning in the course. It was just like think out of the box.

I: You mean that about the card game or both?

No, it is more about the card game. Because the other one is just … The thing it is well as a starter but you don't need to think that much and everything is very obvious, you know. You are not thinking. The game is not really… when you read it there it is very obvious. I mean I know this naturally. But the card game really teaches you how to think out of the box, because you don't want to lose the points, so you are

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[11] Shown on the front side of a scenario card

kind of really forced to come up with better ideas that you didn't have before. We were like asking for solutions in the normal way, like, why? and when?, and then we just started asking what can I do and how. Yeah, that was good.

Furthermore, we see how this interviewee accredits some of the learning effect to the fact that the game system provides you with motivation to come up with better answers. This is exactly why we designed the card mechanic with open answers in mind. In this way we challenge the players and stimulate them to think a bit harder on their answers. We also teach them that there is no one right answer - a lesson that one of the interviewees shares with us in Excerpt 30. Further motivation for trying harder comes also from the competitive element of the game - "because you don't want to lose the points". Here we see a clear contrast between the points in the digital game and the points in the card game. As discussed earlier in this work, points do have a positive motivating impact, but only, if they have a meaning in a rich context, as is the case with the points in the card game.

Excerpt 30

Yes, of course. In the way that I... You know, you realize about how self-aware you are, I think so. I learned about this and that you have many ways to approach a situation in a correct way, of course. For example, I never had this kind of questions to solve problems, ok, Martin, let's have this questions, understand the situation, address this. Yes, many learnings I would say - self awareness, ask before, acting, how to approach a situation. Those were the main highlights.

In the facilitator observation on learning found in Excerpt 31 we see again that a learning effect was clearer when playing the card game rather than digital game. We also see however that there were little expectations on the digital game to facilitate learning. It's main purpose was perceived to be only an introduction, which corresponds with the designers' intention as well. Here the focus is on the surprise players experienced when revealing the proposed right answer on the back of the card. That surprise or in other words the mistakes the players made in guessing the right answer is seen as the element causing learning.

Excerpt 31

The first one (the digital game), I don't know, if to learn - I mean - they did get like... because there is also some intro and some closing of the game, so they of course get some things. But I think it worked more as a opening of the day, but the card game - I saw that it was more into learning. I think it was like this because, I think some questions for them were kind of obvious - like the answers they were giving. I

think in this situation I would do like this or answer like this. But then when they saw the real answer -Ok, it is not what we thought, it was something very different. You can see that. It was definitely a good part of self-reflection. Why didn't we think of this? I think it was very good learning tool for the end of the day. It was very good.

Another interviewee stressed the importance of enough playtime with the card game in order to maximize the learning effect.

Excerpt 32

I mean the game is really good, but it is good, if you play enough, right? I mean, if you have played it enough you get a full understanding of the game. That's pretty much what I didn't like - we spent more time trying to know how to play than enjoying and like trying to learn what the game was meant for, right?

Here, in Excerpt 32 we get one more mentioning of the need for better rule facilitation that we have already observed in the previous subsection, as well as in our observation and survey findings. Another opinion on facilitation we can find in Excerpt 33, where the interviewee expresses his dissatisfaction with the lack of deeper reflection or explanation on the procedural rhetorics engrained in our game mechanics.

Excerpt 33

Let me think. I didn't associate the … all this special PA points you earn to move forward with real life and all this dice things - ok, you need to get scores to move forward, but I didn't associate this with the main topic of the game, so I think this can be more explained, better explained or find a link between real life with this methodology. I know it is a game - we are in a competition, we need to have points - I didn't quite understand that.

I sort of understand like the relation between this facts, that we kind of control in real life with the dices, so the dices … but it makes sense. At the end it can be explained more.

4.3 Speeches' Effectiveness for Promoting Organizational Culture

In this subsection we examine the interviewees attitudes towards the effectiveness of speeches and lectures about organizational values for promoting organizational culture and we compare it to their view on the effectiveness of games for the same purpose.

Overall all interviewees agreed that there is some merit in using lectures and speeches for promoting organizational culture and that their effectiveness would heavily depend on the context, the lecturer and the audience. Most of the respondents pointed out some further disadvantages as well.

Excerpt 34

...because speeches can be fake. It is inspirational of course that they come and empower people to do things, but that's only one time when a person will come.

In Excerpt 34 we see that the perception of speeches revolves around the idea that they could be potentially only words that are not backed by action. In that way their impact is diminished. Furthermore, we see here that speeches and lectures are seen as an intervention that has a one-off effect, which further limits their usefulness.

Excerpt 35

It all depends on how the message is being conveyed. Because there are some speeches that are very preachy. It depends on the person. There are people that get really motivated by speeches there are some others that maybe depending on the way the presenter is explaining the idea they are just disconnected, because maybe they can not ... Yeah, it is different. I don't like these guys that stand, like explain the things as if they were priests for example. I like something more like, it's hard to explain, but I just feel when I hear someone. I am either disconnected or very connected. But I know that that can be different from person to person.

The thing is that when I am working I usually hear some talks and conferences, you know TEDx? Like the guys that explain the ideas in these programs they do it in a very engaging way, the way they talk, the way they are explaining, but there also some other speeches that are really bad - after 5 minutes you don't want to hear anything.

In Excerpt 35 we find further evidence for the conditional nature of speeches' effectiveness for promoting organizational culture. We also see some signs of resistance - mistrust towards speakers, who are not good at engaging their audience. On the other hand, however, we also have an acknowledgement that lectures can be very engaging, if the speaker has good content presented in a skillful way.

In the next Excerpt 36, we find some suggestions on what might be a better approach for promoting organizational culture than speeches.

I: Like , if we have a training and we have a speech or lecture that explains how things are or the importance of personal accountability - how effective do you think this is for…

That wouldn't be effective at all. No, because telling someone how to behave is not going to do any result….

I: What is a more effective way?

I would say - by examples. It is quite difficult… If someone invited me to go to this workshop and it is 30 min of talking and talking I would probably get some of the information. But that won't shape the organizational culture. I would say… I am thinking about myself right now - the way I learn. I learn from real experiences, I learn from people I have seen, my manager acting, behaving in different situations, for example that will teach and then I will get the organizational culture. Leading by example in a way. Or a manager that I know is not behaving or not being integral, talking about leadership, of course doesn't make any sense. Let's have externals, let's have team buildings, let's go out and have activities and to know each other better - this kind of practical things would be more effective rather than a lecture. That would be a waste of time.
Just doing things more - just staying in front of someone that speaks for 30 minutes…. I am an AIESECer and I am talking from my experience in AIESEC and those things, so… Of course that inspire people by telling stories, of course, but there are better ways to inspire people.

Here the interviewee doubts the effectiveness of lectures for changing behaviour, equating it to telling someone what to do. As a more effective alternative he suggests that managers act as role model. An emphasis is put on learning-by-doing, facilitated by team activities, sharing of experience and collaboration.

At some occasions the interviewees were directly comparing speeches effectiveness with games effectiveness for promoting organizational culture.

Excerpt 37

If you want to make a training more interactive and interesting this kind of digital games can be good tools. Yes, yes, of course… We can have the board game in a digital application. Yes, they are very welcome. I like that… not focus on a spreadsheet… power point, presentation, someone talking, of course it is good to have different tools.

Excerpt 38

I think games are always a much better element than just to listen to a presentation and do discussions. For me games are much better learning tools than an inspirational video and lectures.

I: Why is that?

Because it really trains your brain and that is much better than just to listen. By listening you get only 10 to 20 %. Whit actively doing that stuff it is much better (...).

Here it is important to mention that the interviewees might be finding games more efficient in comparison simply because they prefer games compared to speeches.

4.4 Ideas for Improvement

Finally, we present ideas for improvement that were identified in the course of conducting the interviews.

As we see exemplified in Excerpt 39 offering more time to play the game to ensure there is enough time to complete it can improve the learning experience even further.

Excerpt 39

I really, really liked the board game. That was really, really good. I think you could even extend it longer. (...) Because people were not bored yet, people were discussing and they were not talking about other things they were really still discussing about the game, so that meant that you could easily extend it a bit. Because then… now I just got a small taste of it. I think you could completely finish the game then you have a real feeling of it. Cause I was still struggling with the questions and I think, if you go even further

into the game you get the heck of it, like how it works. So for me it was just a taste of it at the moment with the game.

Another interviewee suggested playing the card game twice - once in the beginning of the training and once after, in order to enable a comparison in one's performance and also to allow for more time for the players to learn the game and complete it.

Excerpt 40

I: Yes, right. How long do you think …. First, follow-up question is - how long do you think we should spent playing the game, so we have enough time to learn it and play it?

From my point of view I think that we should have two sessions of playing the game. Because we have the digital, but the digital does not make you think about you creating the answer. I think we should play it at the beginning just to see how our minds fully change after the session. Playing it before, maybe playing it half an hour, but half an hour very productive, so to say, because we still don't have the knowledge, right? So It is like to see how did we select the right approach and after the training I will probably suggest to play at least one hour or one and a half hours. We had an hour in this session, but it was an hour in which we spent the first 30 to 40 minutes, maybe 30 minutes, learning how to really play it well. That was not very productive. But let's say that one hour fully productive on the game.

In the course of the interviews the idea for a demo round was proposed to address the problem with facilitating the rules efficiently. When proposed to the interviewee, she explained that that approach might work, especially, if the training participants could interact with the game elements while the rules were being explained.

A flaw with the PA points rules was identified, but an easy solution was found, namely to allow for PA points gain only in turns in which one didn't spend points.

Excerpt 41

With the board game we had only something about this PA, because when you turn in your PA to get the extra step, you are getting the PA back directly. It felt a bit weird. It didn't make completely sense. That was a bit - ok, I am giving it, but ok I am getting it back directly. So that was the only rule that was a bit off.

It was suggested by one of the interviewees to start with the digital game straight away, even earlier in the training than we did, in order to spark more reflection in the participants due to the limited amount of information about the context of the training.

Another interviewee found the digital game's arrow interface a bit confusing initially. To remedy that issue she proposed changing the arrow icons with thumbs up and down icons instead.

An observation from the facilitator suggests that it might be better to let the training participants play and experience the digital game individually, instead of in pairs like we did in the studied training. Another suggestion from the facilitator was to set the stage for the game appropriately by creating a contrast between the game and the training activities presiding it through a short physical activity or change in the room setting.

A suggestion that points to opportunities for future research can be found in Excerpt 47. The idea here is to play the games with more senior audience and examine the response.

Excerpt 42

I would be very curious actually to see the games with more senior people, especially at the company where you always see this so serious and so formal… to have this kind of environment. That is interesting.

In Excerpt 43 we have a series of suggestions for improvement of the design of the card game.

Excerpt 43

I think the card should give more answer - don't limit to just two questions, we can have three or more. Because we approach different problems in very different way - this is what I think right now. (...) About the design, I think like for the main board you have two different boards and you put it together. That looked quite messy, because it would be better, if you have one big one that can fold in the middle. That would be easier. (...) About the dices and all the pieces, I don't know, you can think about some modern, you know those pieces that you move forward - what do you say in English - you can change - in stead of having those common ones that you play board games with, you can have something related to the work environment. (...). I am thinking about the design of the game - I think you could include more topics. I think there is room for more topics in the game.

To address the fact the digital game was perceived as too simple the idea was discussed to set the expectation better by introducing it as an interactive introductory exercise, rather than a game.

Finally, an addition to the rules of the card game was proposed in order to add an extra level of complexity and also potential for replayability. The addition of such a rule is very easy, but it would bring a fresh new way of playing the game that offers further possibilities for learning.

Excerpt 44

We can give roles in the game. So, for example we are 4 participants and let's say that I will take the role of a new member in the organization and the other player will be like the CEO. The game could be designed the way that you need to think based on the role and that will be very important. In that way for example I will think the way a manager should think and someone that is a manager in real life is in the shoes of someone who is a new member. That will be very interesting, because it will teach another person to think from a different perspective, because when a CEO, let's say forgets about many things, about the problems or someone that is beginning the career that will be very interesting to see in the game. Because that will teach as well, that will be challenging as well. Personal accountability is important, but it is important when you are aware who you are with. And the game will be more complicated in a way, but it will be more dynamic and very connected with real life. Because we interact with people with a different professional and cultural background. Having roles will be very fun.

Conclusions and Recommendations

In this project we have carried out a design experiment and tried to address the following three research
questions:

- How are our digital and non-digital games perceived by organizational culture training
  participants?

- Are our games an effective tool for teaching organizational values and attitudes?

- Are our games an effective presentational ritual that overcomes resistance to change compared to
  lectures and speeches?

Based on the findings from the observation, the survey and the interviews we can conclude that both the
digital game and the card game were well received by the personal accountability training participants.
Stronger preference for the card game was expressed based on the higher levels of self-reported
engagement and learning. This results is explicable given that the card game was more sophisticated in
terms of gameplay than the digital game. On the other hand we found that the participants didn't have a
clear preference for either digital or non-digital games. It became evident that both formats have their
merit depending on the context and the educational goals.

When it comes to the effectiveness of the games the digital game worked well as an interactive
introductory exercise, but it failed to meet the high expectations related with games to the fullest. This
could be seen in the criticism by the participants addressed at the overt simplicity of the digital game - a
criticism that was expected given the behaviorist principles on which the game was build. To address this
the game could be further developed or the expectations on it could be set better, so that no
disappointment arises from the fact the game is simple. Alternatively, an extra layer of reflection can be
added to the digital game by asking the players to think about some questions while playing the game. For
instance, the players could be asked to pick three of the questions presented in the digital game that relate
to specific situations they have experienced. In this way one thinks more while playing the game and gets
a chance to put the game content into context.

The card game on the other hand was described as very effective in facilitating engagement and learning.
The findings show strong evidence for the beneficial effect of the mechanics based on cognitive and
socio-cultural principles in the context of the evaluated training. Overcoming realistic, relevant scenarios

as part of a game was described by the participants as an engaging and enriching experience. Here the main area for improvement was related to explaining the rules better and facilitating the game as a whole in a more efficient way. What we learn is that facilitating the rules of a non-digital game is a major challenge, no matter how streamlined and straightforward the rules are. In any case the explanation takes time and effort - both on the players and the facilitator. To address this issue we recommend using a demo round in addition to explaining the rules using the facilitation aid slide. Additionally, if the resources are available it could be also beneficial to have as many facilitators as possible - at least one facilitator for every two groups or ideally one facilitator per group. This would also help to explain the procedural rhetoric better as there was also some criticism towards how clear it was to the players.

Compared to lectures and speeches, games were preferred by the participants when it comes to teaching organizational values. There was some evidence for resistance towards lectures and speeches, where such resistance was not observed when discussing the effectiveness of games for teaching organizational values. In addition, teaching organizational values is an important way of inducing organizational change. So, we can conclude that from our findings it appears that games could be used as an alternative presentational ritual to speeches and lectures that causes less resistance. However, the benefit compared to lectures and speeches is highly dependent on the quality of the game. Games can turn out worse than lectures and speeches in case a game a is simply bad and a lecture is masterfully delivered. That's why it is hard to generalize which is better. That would highly depend on the context.

Future work can focus on adding more phases to the design experiment as in this project we didn't have the time and resources to test the recommendations and feedback that resulted from the implementation evaluation. Furthermore, testing the games with different user groups that differ in terms of age and cultural background could tell us more about whether the games work in the same way in other contexts than the studied. It is also recommended that future work measures learning by using a control group and compares learning before and after the training in a structured way. Such a comparison would offer a more robust evidence on how the games perform in terms of learning, compared to the self-reported accounts we have presented in this study.

In conclusion, this design experiment tried to describe the design process of two educational games, evaluate their implementation and thereby address the lack of research on the practical implementation of educational games that support organizational change in a corporate context. I hope this thesis has been a pleasant read and that it would help practitioners to develop better educational games in a corporate context in the future.

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Appendix
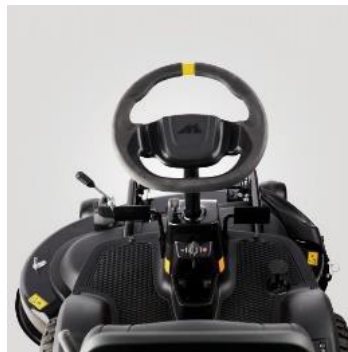
Personal Accountability

The Card Game – Quick Rules

A game by Atanas Karadzhov

Prepare for the gam

1. Get a pen and some post-it

+
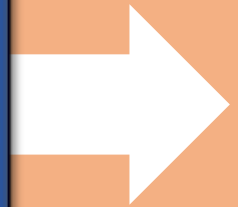
2. Shuffle the deck

First Response

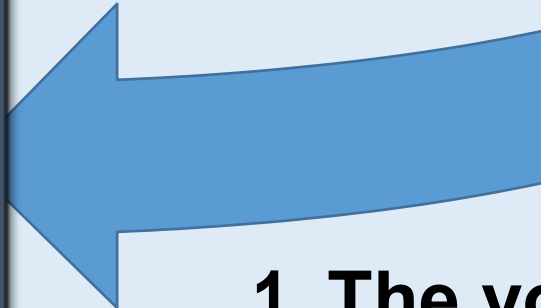The IT department has implemented a feature, but it is nothing like the business wanted it.

First Response

"Those IT people never understand what we want!

When are they going to start listening to our needs?"

Mental Discipline ≥ ⚅

+

"How can I let go of what I can't control?"
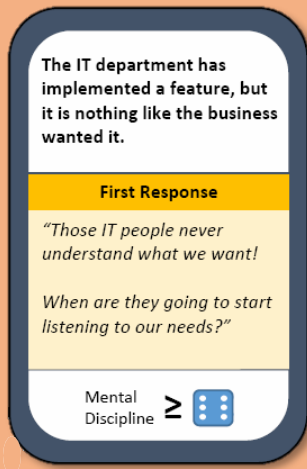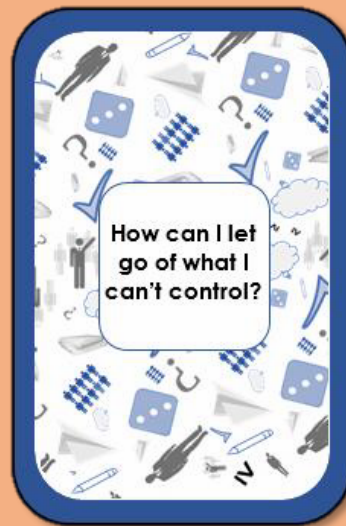
How can I let go of what I can't control?

That side up!

3. Set all pawns on STAR
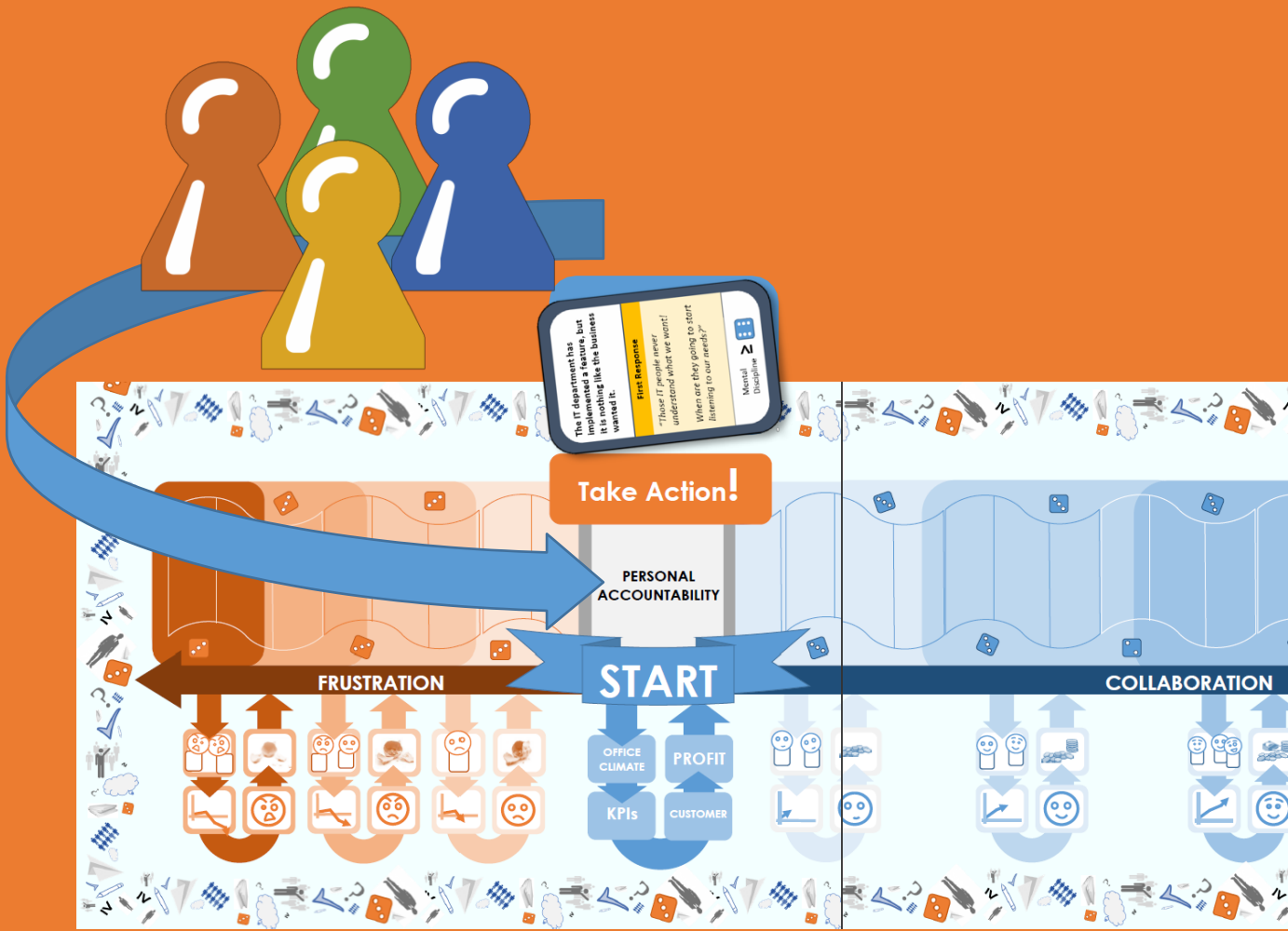
Start the game!

The IT department has implemented a feature, but it is nothing like the business wanted it.

First Response

"Those IT people never understand what we want!

When are they going to start listening to our needs?"

Mental Discipline ≥ 🎲

1. The yo
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for all pla

2. Each player writes down a QBQ for the scenario

3. When ready all players take turns to read aloud their QBQ

4. Flip the scenario card and read aloud the QBQ

The IT department has implemented a feature, but it is nothing like the business wanted it.

esponse

never
t we want!

oing to start
eeds?"

The IT department has implemented a feature, but it is nothing like the business wanted it.

QBQ

"What can we do to communicate our requirements better next time?"

Mental Discipline **+**

5. Check, if your QBQ matches the one on of the card

=

The IT department has implemented a feature, but it is nothing like the business wanted it.

QBQ

"What can we do to communicate our requirements better next time?"

Mental Discipline **+**

≥ Mental Discipline

≈

The IT department has implemented a feature, but it is nothing like the business wanted it.

QBQ

"What can we do to communicate our requirements better next time?"

Mental Discipline **+**

≥ Mental Discipline

≠

The IT department has implemented a feature, but it is nothing like the business wanted it.

QBQ

"What can we do to communicate our requirements better next time?"

Mental Discipline **+**

. Once gained by guessing QBQs
ersonal Accountability points can be used
o improve your mental discipline score.
Once used a PA point is returned to the p

Why are the card borders a differen...

The IT department has implemented a feature, but it is nothing like the business wanted it.

"Those ... underst...

When ... listenin...

Men...
D...

A project has been late for two months and a new delay has been just annou...

"Wher...
going ...

F...

M...
D...

You have had an unproductive meeting in an international project.

F...

"Those p...

Why don... me?"

Men...
Disc...

A batch of defect parts has been detected which causes a production stop.

Firs...

"That supp...

When is so... find better...

Menta...
Discip...

TEAM BUILDING

A team building event helps you get to know each. All move one step forward.

Technology

Projects

International Commu...

Collaboratio...

Events Outside Ou...

The color marks dif... of frustrating so...

Continue the above steps untill you run ou[t] or your play time is up.

OR

The player who reaches furthest on the ga[me] wins!

Rules Summary

- Shuffle the cards

- Read the top most card

- Guess QBQ or follow instructions

- Compare QBQs

- Move pawns

- Gain PA points

1. How did you like the game?

2. Did you get a feel about what personal accountability

3. What is personal accountability according to the gan

4. How did you guess which questions were productive

5. Were there any particularly hard questions? Why we

6. Did you notice any patterns?

7. After playing the game what would you like to learn mor
   tool set?

1.	How did you like the game?

2.	Could you recognize yourself in the game?

3.	Which situations felt most familiar?

4.	Was it easy figuring out the right QBQ? Why?

5.	Did you notice any patterns while playing the game

6.	How did you feel while playing the game?

7.	What did you learn from playing the game?

We value your fe

We need one **volunteer** for eac

Atanas Karadzhov would like to interview yo

Please volunteer, especially, if you are availa

Thank you for part

Please take a minute to fill in

This survey is part of Atanas Karadzho

We want to hear your feedback so we can

Go to: https://goo.gl/forms/A9k8U
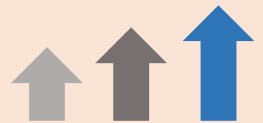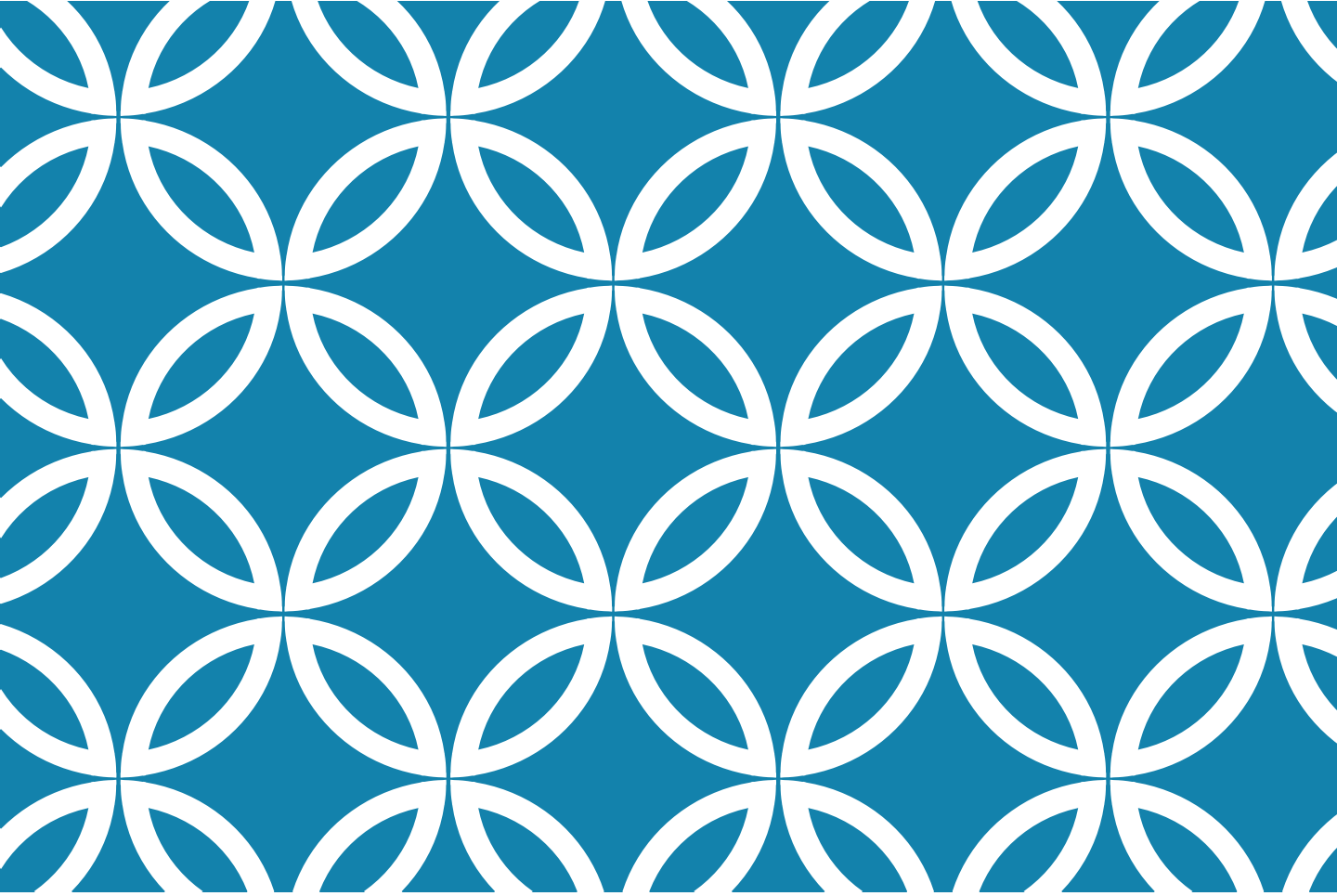
PERSONAL ACCOUNTA

PERSONAL ACCOUNTABILITY

Goal:

Contrast producti
thinking from a P

Target Group:

Employees takin

Game Concept:

Distinguish betwe
counterproductive
structure

Understanding, C

Aesthetics:

LEARNING CYCLE – PA TRAININ

1. Play Digital Game – Le

2. Play Card Game – Learn to formulat

3. Play Board Game – Create a holistic platform t
rhetoric and further strengthen pe

SCRATCH DEMO FOR A DIGI

Develop a prototype of a digital game in Scra

Try to implement as much content as possible

Designed as per the storyboard and the level

To be submitted as the Scratch assignment for

LEVEL STRUCTURE

LEVEL 1 - DESK
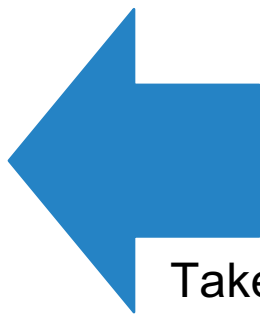
Take a break
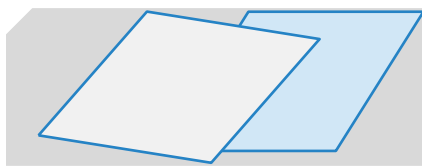
LEVEL 1 - BREAK

Others don't work as hard as I do. It's not fair. ✓ ✗
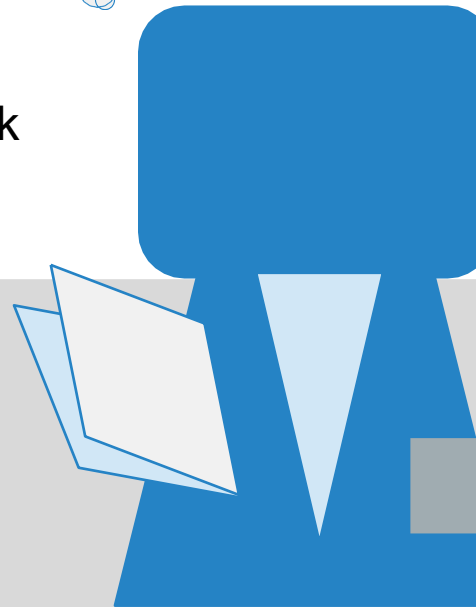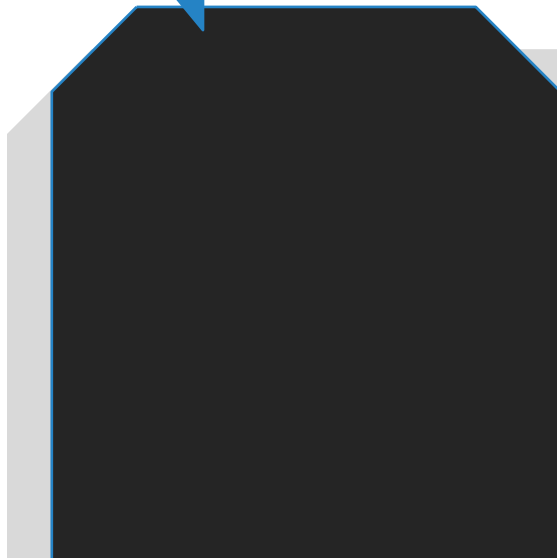
Go back to desk

LEVEL 1 - MEETING
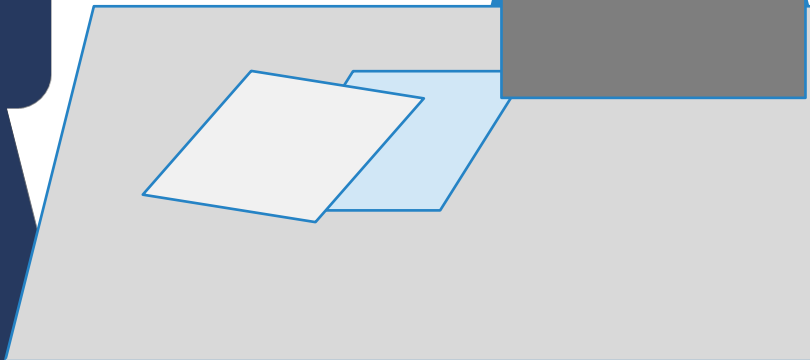
LEVEL 2 – THE OFFICE

LEVEL 3 – THE DIVISION
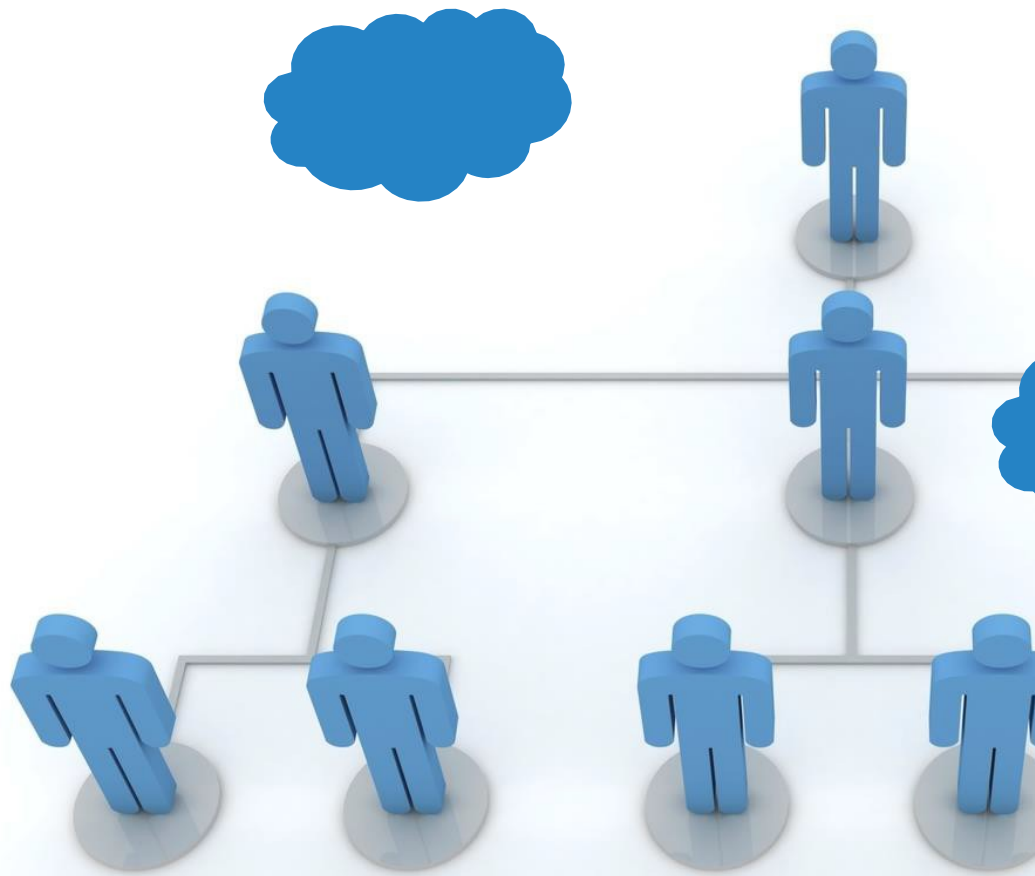
LEVEL 4 – THE WORLD
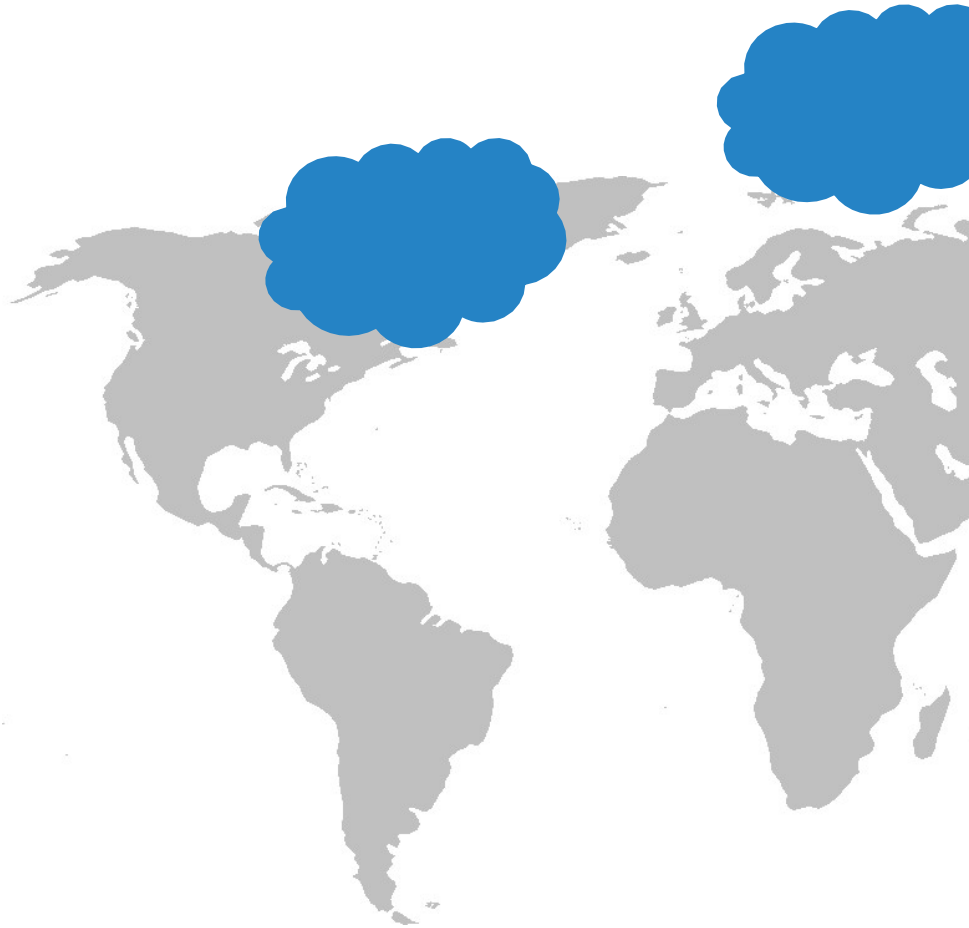
PERSONAL ACCOUNTABILIT

Develop a card game that facilitates learning t
accountability

1.

2.

EVENT
DECK

3. 🎲

4.

START

← FRUSTRATION
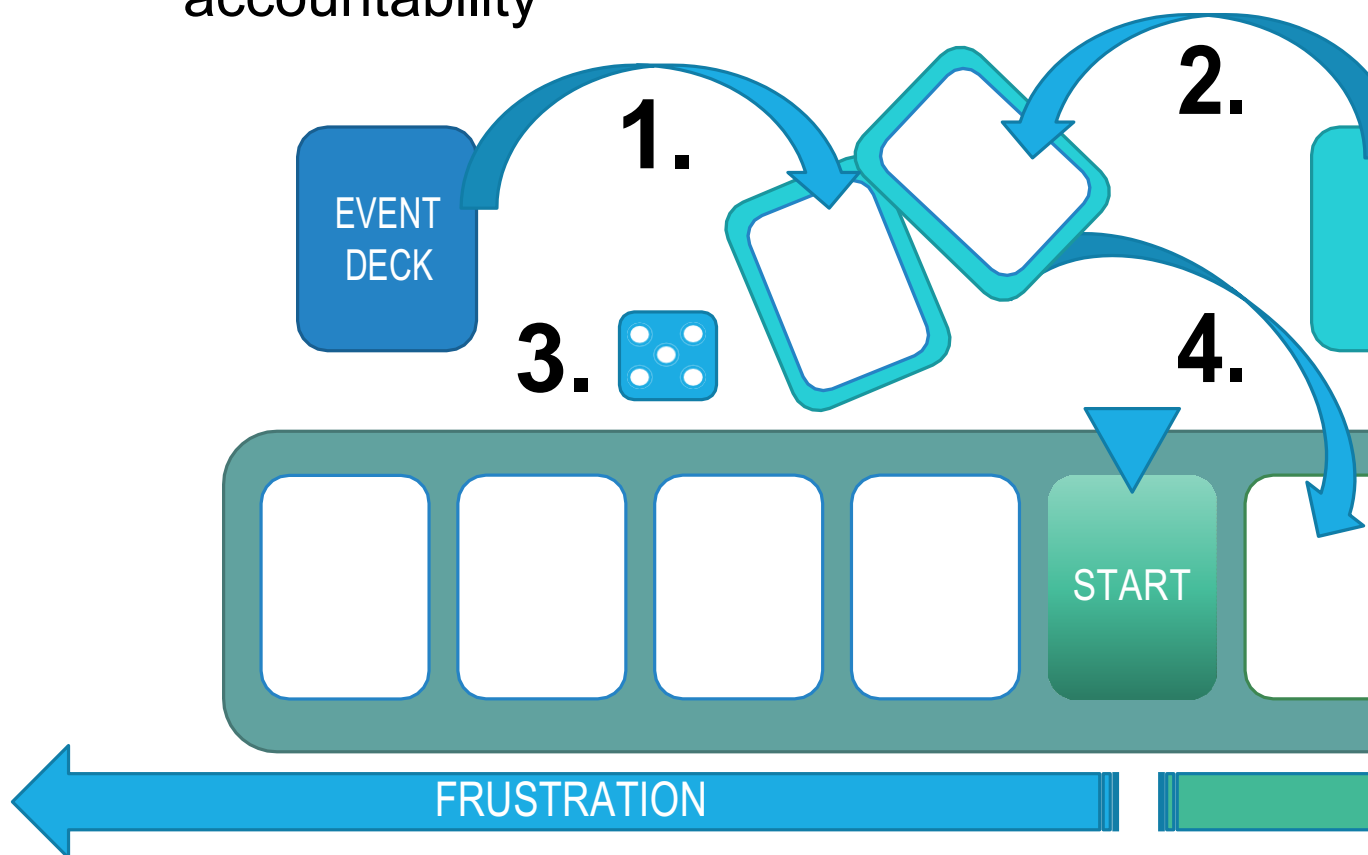
BASIC CHARACTERISTICS

Type: One-sided team game/ Multiplayer game? (if on
Maybe start with a co-op version (=tutorial?) of the rules
game.

Players: 1- 4

Play time: 20-30 min

Contains:
- 60 x Event Cards
- 60 x Response Cards
- 1-4? X Performance tracks
- 4 x D6?/1 x D20?

End condition: The game ends when the collaboration
been reached by any player. The player with the highest
wins.

RULES IN SHORT

1. Draw the top event deck card

2. Draw the top response card from a pile match

3. Try to come up with a PA response using the F

4. Roll for mental discipline and add your PA sc

5. Guess the PA response

6. If you guess correctly add the MD score on the b
MD roll and improve your PA score by 1, otherwis
Personal MD score is added to your MD roll nex

7. If you pass the MD roll put the card on the coll
track, if you fail the roll put the card on the frus

PROCEDURAL RHETORIC

Our first response is usually negative, defensive, b

Mental Discipline is required to come up with a PAre

In some cases it is harder to use PA (higher roll requ

Our response is not always within or control, somet

Frustration will always occur, no matter how good v

However, if we try and succeed we have a higher ch

We also get better at MD/PA the more we exercise

The better we do at MD/PA the better our office climate,
profitability is.

Office climate affects KPIs, KPIs affect the customer
the company profitability

AVATAR DESIGN

❖ The Intern – AIESECER/Global Trainee

Manager

Seasoned Engineer

Husqvarna Veteran

The Specialist

Corporate Agent

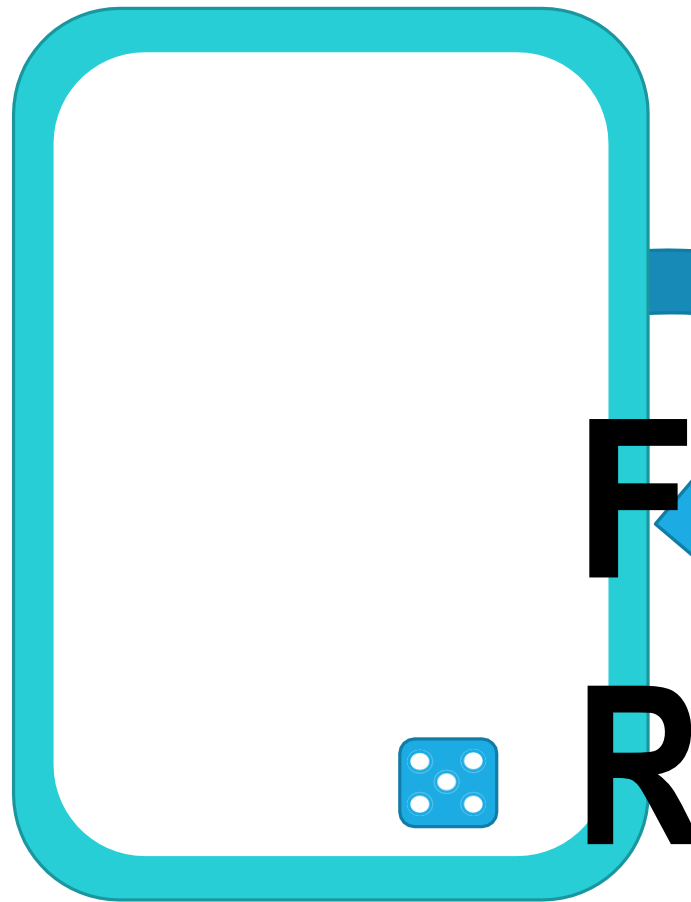Designer

Worker

EVENT CARD DESIGN
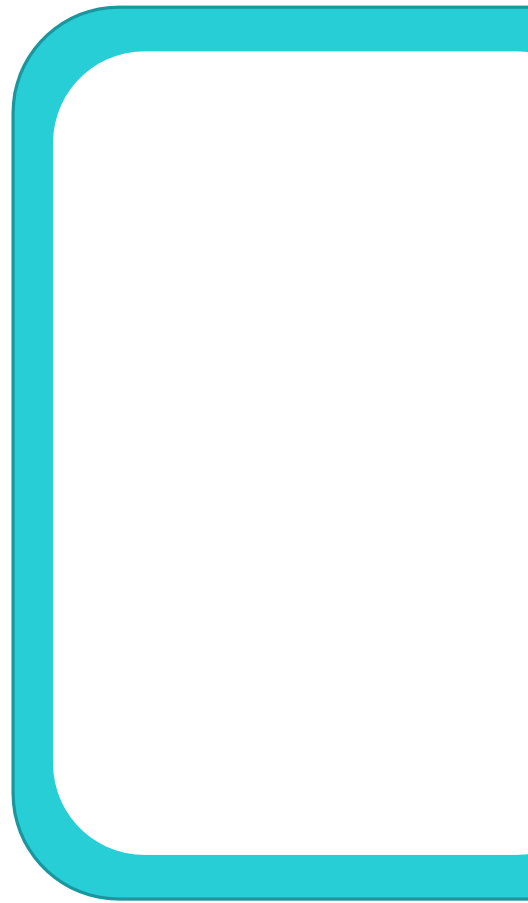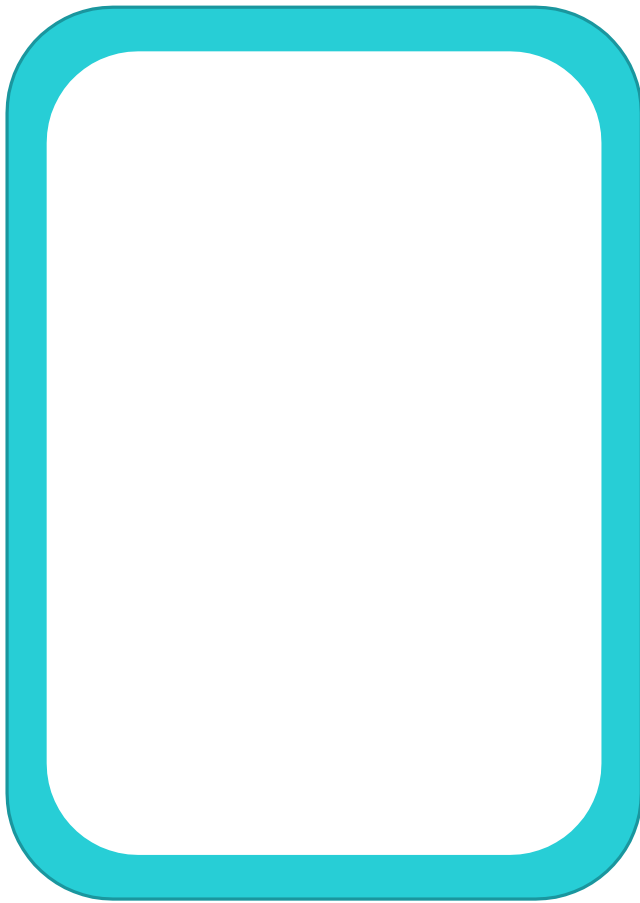
The IT dep

RESPONSE CARD DESIGN

FACE UP SIDE

The IT department has implemented a feature, but it is nothing like the business wanted it

What is your response?

MENTAL DISCIPLINE ROLL

❖ Allow for snowball as a for of procedural rhetoric
thinking, upward spiral of positive thinking

Add an extra die of a different colour to determ
potentially changes your first response to a PA respo

RESPONSE FORMULATION SUPPO

Add some guiding questions

Add some tips for formulating a PA response

❖ Add question building blocks in the form of word
"How", "do", "help"

Color code the different word types, e.g. grey
green for preposition, white for nouns

Still the player uses does elements as a support. Ea
elements than those that exist as blocks

PERFORMANCE TRACK DESIGN

Represent the outcomes of personal account

Frustration vs. Support, Teamwork, Collaborati

PA affects:
- Office Climate
- KPIs
- Customer
- Profitability

PERSONAL ACCOUNTABILITY -

Develop a board game that facilitates learning th
accountability

Similar to the card game but with an added mono
navigate turnwise

BASIC CHARACTERISTICS

Type: Multiplayer Game

Players: 2 - 4

Play time: 30-40 min

MASTER THESIS

Develop a game for communicating the core ideas of Persona

as part of a wider communication and training campaign are

Q4 2016 develop a prototype as part of the educational

Q1-Q2 2017 Master Thesis - the prototype is to be tested

rolled out and outcomes evaluated

Potential research question: *How can procedural rhetoric*

in a corporate environment?

Appendix IV – Interview Questions

1. What did you like most about the digital game?

2. What did you like most about the card game?

3. Is there something you didn't like about the games?

4. Were the games engaging? Why? What was engaging about them?

5. Did the games help you learn? In what way?

6. How did you like the design? How can we improve it?

7. Were the games too hard or too easy?

8. Did the games fit in the wider training?

9. What did the games contribute that the other training activities didn't?

10. Which game did you like better? (Why?)

11. Would you like to see more digital games or non-digital games used in trainings in the future? Why?

12. What needs improvement? What can we do better next time regarding the games?

13. To what extend does organizational culture affect our success as a business? (Why?)

14. To what extend are organizational culture and performance related? (How? Why?)

15. How effective do you find speeches and lectures about organizational values and attitudes for promoting organizational culture? (Why?)

16. How effective (1-5) did you find games overall/digital games/non-digital games for teaching organizational values and attitudes before and after the training? Why?

17. Anything else you would like to add?