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A Framework for creating gamified on-the-job training.

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Abstract: The main purpose of this thesis is to review how gamification could be integrated together with corresponding motivational theories in on-the-job training in order to increase employees' motivation in the training process for increased expected learning outcomes. This study presents the framework for creating on-the-job training while emphasising the importance of flow experience as a design principle, various user types and corresponding motivational theories by applying several game mechanics. The choice for this topic is due to the lack of academic literature on gamification in the working context especially in on-the-job trainings, while the necessity of improvement of user's motivation in participation in such trainings is already well established. Among baseline theorises applied for the framework are: the flow theory, FODEM and experiential gaming model, they were combined with various motivational theories, description of game mechanics and studies on user's types. Taking into account the blurry boundaries of the framework intersections, including business return on investments, user experience design, behavioural science, the best way to evaluate an artefact was to apply the method «Demonstration of the use of the artefact with one or several real examples», which assesses two criteria - goal and efficacy by absolute relativeness of evaluation in the form of analysis and logical reasoning. In this thesis, we created the baseline for a new onboarding on-the-job training following four fundamental steps of the framework for a specified narrowed list of employees, establishing the list of user experience characteristics to be transferred to the user interface designers and programmers. To evaluate the framework model from the user's perspective, we conducted a series of interviews, all results were recorded, summarised and analysed for any similarities and shared ideas. Details about the framework and different evaluations are reported in this paper.	
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Chapter 1. Introduction

1.1. Research objective

In case a company intends to develop, it should create a working team, consisting of highly motivated and involved employees. One of the critical points for continuous growth is on-the-job training, which helps to enhance human capital within the company, providing indisputable support for management to improve the company's effectiveness. It is highly recommendable for the training to be well prepared in advance, be variable regarding methods and techniques, and adaptable to numerous cases. In case the initial interest in on-the-job training lies in the field of managed success and profitability of the company governed by the top management, the final users of this training content are employees. Therefore, it is crucial to identify relevant skills and challenges to increase their engagement in the training process initially and to improve their workability in skills developing, behavioural adaptation and competence enhancement.

During the author's ten years of working experience in global international companies with headquarters in the USA and EU, she was faced with difficulties and insufficient training for employees. New team members lacked a feeling of belonging to the company, identification to the team, and social integration, as well as organisation's goals, philosophies, structure were only partly understood and not often taken into the practice during their future work. Moreover, the dropout rate was close to 50% within the first two years, keeping the trend of the same mean values in that labour market's sector. Those, unsatisfactory results led to the company's profit loss, customer's dissatisfaction, and, even having market-leading technologies, exceptional engineering and development centres, these enterprises had to pay fines and penalties for work defects due to incorrect employees actions. Most of the mistakes, after negotiations and lessons learned sections, were identified as issues done due to non-compliance with the company's instructions, procedures and policies. Therefore, enterprises were receiving their profit not through employees' commitment to develop and improve business, but despite of their lower incentives. That working experience made the author think of possible changes in the business, specifically in on-the-job training, as it will be further presented in this study, highly motivated personnel, who believes in the company's mission and is committed to following it, could be a mover and an initiator of positive changes, driven by the enterprise's success. Consequently, management has to hire appropriate knowledgeable employees, create on-the-job training with learning-relevant effective instructional methods and make those users be motivated to participate in the training environment actively.

This study emphasises the need for integration of business needs, behavioural science and game design to be able to create meaningful and motivational training. The primary purpose of this research is to present a conceptual framework for defining and analysing

the methods to be used when developing on-the-job training, the psychological aspects to be kept in mind to customise the content and adjust its difficulty to each user.
Since 2010, the popularity of gamification has grown continuously. In general, this approach includes design of gamification methods in various contexts inducing experiences familiar from games to support different activities and behaviours (Huotari & Hamari, 2017; Deterding et al., 2011). Game-based tools have brought success in educational contexts, providing support when developing comprehensible digital learning environments and engaging learning tools.
Bearing in mind this increasing trend we have considered it relevant to analyse the gamification from an on-the-job training perspective to define possible solutions for employees' engagement in the training process for increasing expected learning outcomes and the personnel's motivation and commitment to pursue their careers at a specific company.

1.2. Research questions and the structure of the thesis

The combination of on-the-job training with gamified educational tools formed the field of interest for this study. What factors impact employees' motivation in on-the-job training? Could game mechanics increase employees' motivation in on-the-job training? Altogether they formed the primary purpose of this thesis by presenting a framework model for creating on-the-job training while emphasising the importance of flow experience as a design principle, various user types and corresponding motivational theories by applying several game mechanics.
This study is divided into four chapters, beginning with the introduction to the topic of this thesis. Relevant research method description, motivation for the research, research problems as well as the structure of the study are described in this part. The second chapter forms the theoretical basis for constructing a framework. In the literature review, the term «gamification» is presented, including its applications, real-life examples of serious games and games beyond entertainment. The motivation for on-the-job training is discussed from a business perspective, covering possible companies' goals and challenges. We analyse the main problems of e-learning materials and provide the most recent research on the effectiveness of gamified training within the working environment. The second chapter describes gamification and motivational theories, discussing:
1) how gamified tools could influence the way employees think in terms of learning, including psychological barriers and problems that preclude successful on-the-job training;
2) whether gamified training could increase the perceived learning within a company's members and motivate personnel to pursue ongoing development; and
3) whether there are any limitations in terms of gamification sustainability.

The third chapter introduces the design science research with the final artefact framework for creating a gamified on-the-job training, as well as an evaluation of this framework for creating on-the-job onboarding training. In chapter four, we used those evaluation results to revise the framework concerned as the primary outcome of this thesis. In the final chapter, all the threads are gathered together, and outcomes are compiled with further research steps in the field of gamification from behaviour science and UX design perspectives.

1.3. Research method

This research was carried out in two phases related to the necessary activities of design-science: building and evaluating (March and Smith, 1995). In this thesis, design science is equated with constructive research with the movement from the initial state to the final state to construct a new artefact. Based on March and Smith's (1995) definitions of four types of artefacts, we decided to adhere to their model. Thus, the main focus of this thesis is on developing the experiential framework model for creating on-the-job training. The long-term goal is to theorise the constructed framework model and provide a tool or a map for other researchers to test and validate the experiential framework for creating trainings.

Currently, academic literature lacks a formal list of the evaluation of artefacts in information systems design science research, compared to other research methods, and associated sets of evaluation methods and evaluation criteria are fragmented in the literature. However, after reviewing previous studies (March and Smith, 1995; Simon, 1996; Gregor and Jones, 2007; Prat et al., 2014;), we decided to follow the research done by Prat et al. (2014). By varying the values of the four characteristics of evaluation criteria they presented (a form of evaluation, secondary participant, level of evaluation and the relativeness of evaluation), multiple generic evaluation methods can be defined. Taking into account the blurry boundaries of the frameworks intersections, including business ROI, user experience design, behavioural science, and adjusting them to the possible evaluation methods (Prat et al., 2014), we decided that the best way to evaluate an artefact is to apply the method «Demonstration of the use of the artefact with one or several real examples». This method assesses two criteria - goal and efficacy by absolute relativeness of evaluation in the form of analysis and logical reasoning. By demonstrating the use of the information system artefact/model in one or several real examples is a common way to verify an artefact's efficacy. In this thesis, we will create the baseline for a new onboarding on-the-job training following four fundamental steps of our framework for a specified narrowed list of employees, establishing the list of user experience characteristics to be transferred to the user interface designers and programmers regarding further steps.

1.4. Description of the framework

The primary purpose of this thesis is to present a framework model for creating on-the-job training while emphasising the importance of flow experience as a design principle (Csikszentmihalyi, 1975). Various users' types and corresponding motivational theories are applied as a toolkit in an *Octalysis* framework with eight core drives for user motivation and related game mechanics (Chou, 2016). All those theories have already been utilised, separately in many studies, but in this thesis, they are combined in a meaningful way to support business companies in meeting their goals for on-the-job training by applying game design aspects.

One of the main challenges of designing on-the-job web-based training is the low level of users' motivation and, as a consequence, there is an insufficient level of perceived learning. Unfortunately, both our own working experience and background literature confirm that web-based training is currently used as an information distributor only, not taking into consideration users' needs and feelings, which also include motivation and engagement to participate in the training environment. In order to archive a higher level of user motivation, distinct toolkits and design solutions need to be utilised while creating such training. We, therefore, decided to introduce gamified methods to meet those challenges. Generally, games satisfy the basic requirements of learning environments by providing an engaging experience.

Our main task for this thesis was to introduce the framework model that supports business while creating on-the-job training to increase employees' motivation and loyalty to the company. The framework includes four key steps: 1) tasks, 2) methods, 3) outcomes, 4) risks.

The experiential framework model can be used to design and analyse gamified training; nevertheless, the model works only as a link between motivational theories and game design and does not provide the means to a whole game design project. Several issues should be considered when designing on-the-job training that is not included in the framework. The company should also pay attention to the learning material, storyline, graphics and sound, and various combinations of skills/challenges within the path between boredom and anxiety, in the zone of proximal development, to keep the user's feeling of flow.

The first step intends to identify the goals and challenges within a training environment, including four types of tasks: 1) attitudes and feelings, 2) knowledge of the organisation, 3) knowledge of the job, 4) other. Based on this input, the framework requires the user to fulfil the following steps 2–4, by adding corresponding core drives, game mechanics, identification of desired outcomes in the cross-sections of four characteristics — psychological, technical, pedagogical and other — and finally, analysing possible subsequent risks, such as anti-core drives or wrong outcomes. Keeping in mind the cyclical nature of the framework, the fourth step within the first evaluation round is not the end-phase. In order to implement changes in the chosen

gamified methods, it requires the user to rectify all the results by returning to the methods mentioned in Section Two. Within the following evaluation round, the user may finalise the desired methods and assess the corresponding risks. In case they are negligible to a company, the framework directs the user to the final stage of the process, which is a ready-to-use description for user interface designers and programmers.

The author wants to stress that the proposed framework model does not aim to provide one solution for creating training. Admittedly, however, it will help the business to ask similar questions, in order to rectify their needs and to determine the possible and desired outcomes, as well as the primary user type and its core drives for engagement and motivation, also keeping in mind the obvious risks based on their solutions. Generally, if the user is directed by the framework and follows the steps, he/she contributes essential data to the creation of a learning environment, while also gaining knowledge about motivational theories, gamified systems and their outcomes, which could be used more widely as a design principle in the different contexts of the business.

1.5. Evaluation method and target users' group

This research was carried out in two phases according to the required activities of design science research: building an artefact and evaluating it. The final state, therefore, is the construction of an artefact – a framework for creating on-the-job training. For this design science research, we decided to evaluate the framework applying the method «Demonstration of the use of the artefact with one or several examples». The assessment criteria are – achieving goals and efficacy through an absolute relativeness of evaluation in the form of analysis and logical reasoning, as a demonstration of the use of an artefact/model in one or several real examples. It is a common way to verify an artefact's efficacy in design science research.

Driven by an idea to ease and support better development of training for new employees, which includes highly motivational and valuable content and user experience, we made a final decision on specific training to evaluate the framework – deliver a baseline to create an onboarding on-the-job training, which could probably become a useful tool for business in order to decrease development costs and workload, and at the same time improve employees' loyalty to the company and reduce the turnover of newly recruited personnel via applying on-the-job training.

In the second chapter, we introduce different user types and the corresponding motivational theories. We decided to narrow down the labour list to a specified type of users, which would be the subject matter for our evaluation. The baseline to create such a list included recent studies on the proportion of such employees. The list includes Millennials, socialisers, and new employees. Keeping in mind this focus group, we first created a list of possible challenges within companies and goals for onboarding training, followed by suitable gamified methods, and then discussed possible outcomes and risks.

Finally, we summarised all these findings to propose further solutions and development steps.

Chapter 2. Literature review

2.1. Defining gamification

In 2008, the term «gamification» originated in the digital media industry. In 2010, the popularity of gamification increased resulting in various ways of application within educational contexts, which brought about different interpretations for one approach - serious games, educational games, gamification. We will study them further regardless of any distinctions in terminology.

Over the last few years, marketing and consultancy sectors have been promoting gamification as a potential source of revenue. Gabe Zichermann and Cristopher Cunningham's book *Gamification by Design: Implementing Game Mechanics in Web and Mobile Apps* (Zichermann & Cunningham, 2011) was one of the most popular ones in a business context. Zichermann's website *www.gamification.co* has also contributed to defining gamification. According to Jane McGonigal, gamification is not only a new goldmine for designers and business people, but it is also a tool that has the power to change the world (McGonigal, 2011). She defines gamification as a concept where users not only solve puzzles within the frames of digital games but also regulate social and political issues. Gamification enables excellent changes for a generation of social entrepreneurs and marketing experts in perfect and timely combination with the re-evaluation of participatory practices (Fuchs, Fizek, Ruffino, Shrape (Eds.), 2014).

Gamification refers to a design approach of enhancing services and systems with affordances for experiences similar to those created by games (Huotari & Hamari, 2012; Koivisto, Hamari, 2019). These "gameful" affordances aim at supporting and motivating the user toward the behaviour that the gamified system is targeting, such as healthy behaviours and exercise. At the same time, the experiences created by games refer, e.g. to senses of enjoyment, flow, autonomy, mastery and accomplishment, that are considered to be induced by games and gameplay (Koivisto & Hamari, 2019).

Describing gamification as a concept, researchers Huotari Kai and Juho Hamari conclude that gamification at its core refers to a system design that aims to promote the purposefulness of a system to reach benefits. Gamification has three parts: design, psychological and behavioural outcomes (Huotari & Hamari, 2012).

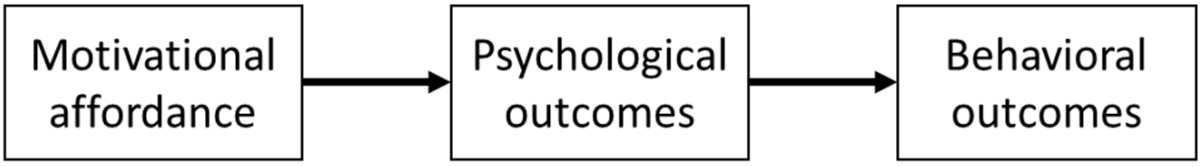

Figure 1. Abstracted elements from the definitions of gamification (Huotari & Hamari 2012).

In figure 1, mentioned above, motivational affordance states for users needs and stimuli, which affects users' psychological outcomes, seeking for several behaviour changes. On an overarching level, gamification comprises of three main elements: the affordances implemented to a system or service lead to psychological outcomes, and these gameful experiences further lead to behavioural outcomes (Hamari et al., 2014). The affordances refer to the various elements and mechanics that structure games and aid in inducing gameful experiences within the systems. The psychological outcomes refer to psychological experiences such as competence, autonomy and relatedness, enjoyment and engagement, which games and gamification are commonly considered to promote (Koivisto, Hamari, 2019). The behavioural outcomes of gamification refer to behaviours and activities, such as continued or increased physical activity in the context of exercise gamification, or increased learning results in the context of education. It becomes evident in the white-paper *Gamification 101* by the company *Bunchball*, one of the victorious proponents of gamification techniques, which states: "At its root, gamification applies the mechanics of gaming to non-game activities to change people's behaviour" (Bunchball, 2010).

Juho Hamari (2015), in his Doctoral Dissertation on *Gamification: Motivations & Effects* states that further possible steps to review identified patterns in gamification is the notion of using technology to change people's behaviour towards a desired goal. One of such areas is on-the-job training, that will be reviewed in this study, bearing in mind the idea of adoption of gamified tools in the learning and training processes and their influences on social and business life. We analyse ambitious implications of game-based technologies and ways they could change our behaviour and discuss further directions in this field based on various articles related to the gamification of education and learning.

2.1.1. Applications of gamification

Any advertising campaign has a goal behind it – to receive reactions from customers, consisting of four steps: attention, interest, desire and action (AIDA) (Fuchs, Fizek, Ruffino, Schrape (Eds.), 2014). In other words, only if there is a desire, and if the consumer is capable of attaining the product, may he or she perform the purchase. Gamification processes, however, provide a more direct way of adjusting the behaviour and, therefore, the loyalty of the consumer. We can take as a simple example the frequent-flyer programs, that could be assumed as a primal form of gamification. Niklas Schrape, in his article "Gamification and governmentality", provides a profound description of such successful examples (Fuchs, Fizek, Ruffino, Schrape (Eds.), 2014). Star Alliance introduced Miles & More's programme by Lufthansa in 1993, which changed the nature of the customers' cards and flying experience. Already in 2011, the programme counted more than twenty million participants worldwide. Miles &

More changed the airport area to an extremely hierarchical field for social contests about status and privilege, making it the very source of identity. Passengers receive points for their flights, which will be recalculated in miles. Award miles or status miles could be collected in order to obtain a higher hierarchy level - starting from frequent-flyer status (level 1) to senator status (level 2) and finally to member of the elected HON-circle (level 3). The moving force is not the small benefits themselves, but the exclusiveness of the status for its owner. The structure of status cards, exclusive areas and privileges create an artificial hierarchy within the social space of the airport.

An important thing related to gamification in comparison to the traditional way of demonstrating loyalty and preferences is the fact that gamified applications attain a visible history of product usage (Fuchs, Fizek, Ruffino, Schrape (Eds.), 2014). Frequent-flyer programmes and status cards visually display a personal history of product usage. Furthermore, special status of a passenger is measured in miles and materialised in cards and stars, transforming consumption from simple one-time action to a process with its own history and visible publicity.

One of the leading companies in the field of gamification, Bunchball, states that the promise of status makes all the difference. Gamification techniques, for example, in frequent-flyer programmes are strategic instruments to manipulate people's behaviour related to products or services and create a personal history with one's commitment to frequently using their services. "And they [the passengers] will go out of their way to stick with the vendor where they have the most points and status – even when disappointed with the actual service" (Bunchball, 2010).

In terms of a person's loyalty and behaviour change, the world and society could be transformed by the way the airport changed - people do not have to be illuminated but simply measured and motivated by points and badges in order to make them fitter, happier, and more productive.

People are no more disciplined to behave correctly on their own. However, they could receive, for example, points and stars for their past behaviour to be motivated to continue in the favoured way. Miles & More's programme with its senators' lounge is a materialisation of positive feedback. Therefore, gamification could be applied to make the world a better place, as stated in writings by Jane McGonigal (2011): "What if we decided to use everything we know about game design to fix what is wrong with reality?" For McGonigal, gamification holds the potential to motivate every individual to behave more responsibly, to solve problems, and behave in a better way. According to Evgeny Morozov (2013) in his book *To Save Everything, Click Here,* the gamified trash BinCam take pictures of dumped waste, post them online, provide awards points for correct separation, while exposing unwanted behaviour. For Morozov, it is an example of «solutionism» – the belief that technological innovations could identify situations and problems to be solved.

The current European Commission's programme Horizon2020, which includes «Advanced Digital Gaming/ Gamification Technologies» in non-leisure context

(European Commission, 2014), states that "Digital games can [... .] make a real change in the life of a large number of excluded groups, enhancing their better integration in society" (ibid.). Therefore, gamification is applied as a tool to reach political goals. The European Commission reports that these techniques "show potential in addressing issues of policy concern, including wellness and ageing, education and employability of poor learners, improved quality of training and skill development in industry, and civic participation" (Centeno, 2013). People feel free, but initially, their behaviour is monitored and scored/regulated. This idea is common to computer games, where choices are limited, but gameful experience provides the player with the deception of freedom.

In 2014 a group of researchers conducted a literature review of empirical studies on gamification and published a paper *Does Gamification Work?*, which included their findings on that topic (Hamari, Koivisto & Sarsa, 2014). The majority of the reviewed studies (24) yielded positive effects from gamification. Some of the articles showed partially positive results and discussed why some of those results could not be reached. For instance, the most extensive studies in the review reported that gamification might not be effective in a utilitarian service setting. However, engagement by gamification depends on several factors, such as the motivations of users or the nature of the gamified system. The understanding of the contextual factors would benefit from considering the following theoretical perspectives: (1) the social environment: theory of planned behaviour states that the voluntariness of carrying out a task is one of the main antecedents for attitude formation and behaviour; (2) the nature of the system: is the system in question utilitarian or hedonic; and (3) the involvement of the user: is it cognitive or affective (Hamari, Koivisto & Sarsa, 2014).

Experimental conditions could test the impact of the context of the gamified system. By implementing particular motivational affordances and holding them constant while varying the nature of the underlying service could give insight into how the context affects the outcomes of the gamification. In some cases, the results of gamification could be short-term, being only a novelty effect for users. However, in some studies, the removal of gamification led to detrimental effects for engaged users, possibly due to loss aversion from losing badges and points that they have already earned. Hamari et al. (2014) also mentioned that, although gamification is often touted as a marketing strategy, none of those studies were conducted in a marketing segment. Nevertheless, the dependent variables across the studies showed increased quality of the system and service, acting as a significant marketing driver.

One of the practical applications of gamification lay in the field of user-computer interaction. Many kinds of interaction with computers require some calibration. The need for calibration arises out of individual user differences, and environmental and situational changes. For example, a user's performance with a new input device may need to be tested in order to choose an optimal control-to-display ratio. Calibration, or the lack of it, may have substantial effects on the success of an interaction with a

computer system, including poor performance with an input device, missed signals due to non-detected stimuli, and selection errors. However, because calibration is a tedious process, users often skip it. Gutwin et al. (2011) tested three calibration games in order to rectify whether the game mechanics could enrich user's motivation and engagement in the calibration process. Their observations suggest that the performance increased significantly comparing to non-gamified environment, as well as a time to complete for all users and within every gamified calibration process (Gutwin et al., 2001). The improved performance may have been caused by people trying harder in the game, which consequently, helped to produce more accurate data since it did a better job of encouraging people to try their hardest at the tasks. However, researchers conclude that their evidence on results only shows that people performed differently in the gamified calibration environments, not why those differences occurred. Those changes may be caused by differences in the presentation of the stimuli, or interaction affects with other game elements. The way to get the user's perception is to obtain their views, that suggest a motivating effect of the game's rewards and encouragements within gamified calibration environments.

We mentioned the calibration process as one of the applications of gamification due to the various systems and trainings that have addressed calibration, including technologies for interactive touch, 3D sound, location-sensing technology, eye-tracking, heads-up displays, glove-based input, personalised colour displays, and physiological sensing – for detecting emotional states. As far as our study focuses on on-the-job training, many of those technologies, due to a company's specifics, may be applied in the training environment.

In 2019, one of the leading gamification companies, TalentLMS, turned to almost 600 employees in their survey on gamification at work, the age ranging from 18 to 69, with a mean age of 37 years. In order to provide sufficient qualitative results on the benefits of gamification for the company, we decided to include a summary of their key findings, focusing on those correlating with our research topic, on-the-job training (TalentLMS, 2019).

- Employees say gamification makes them feel more productive (89%) and happier (88%) at work;
- 33% would like more gamified elements in their employee training software;
- 83% of employees who used gamified training within working environment felt motivated, while 61% of those who received non-gamified training felt bored and unproductive;
- 89% believe they would be more productive if their work were gamified;
- 78% of users stated that gamification in the recruiting process would make the company more desirable for employees.

Concerning the final finding, Pfau Richard (1998) stated that the orientation could be taken even before the first working day. Taking business needs into account should be reasonable to decrease the timing as much as possible and at the same time improve its

productivity, for example, by using gamification in the training environment. As a result, according to the respondents' answers, it would make a company more desirable for employees. It could have various outcomes for users, starting with increased employees' loyalty, level of perceived learning, readiness to develop and grow within the company, and, finally, decreased rate of absence, and increased production and quality.

Among other key findings, as opposed to the above mentioned positive results of gamified training, the majority of people who receive non-gamified training scored low levels of motivation (28%) and valued their training as being boring (49%) and unproductive (12%). According to the survey, e-learning gamification makes 83% of users feel motivated, and only 13% feel bored or unproductive (TalentLMS, 2019).

The research also covered a question on which types of training employees would like to have gamified. Respondents mentioned that 30% would gamify corporate compliance training, 18% training on products and services, and 16% technical skills development training. In the next chapter, we will introduce the most significant workforce, Millennials, for whom one of the highest priority is to improve skills and personal development within the company (Deloitte, 2016). All three pieces of training, which are listed as a desired step for gamification, are among Millennials' high priority, given a supporting confirmation about the reasonability of application gamified solutions in a working environment. The gamification survey reports that nine out of ten employees feel happier when they use gamified software at work.

As an additional benefit, gamified experience boosted competition and easiness among 89% of the users; the same percentage clearly stated that gamification makes them productive at work. In our study, we could apply this result as a possible outcome of successful on-the-job training that increases users' technical knowledge of the company's software, systems, products and services, as well as psychological outcomes, comprising better social integration and identification with the organisation and team mates.

Turning our review to the educational field, it would be reasonable to mention one of the empirical literature reviews in gamified education and learning which was conducted by a group of researchers in 2018 (Majuri, Koivisto & Hamari, 2018) as well as all studies to-date with the term 'gamification' in the field of education. The literature search was conducted in 2015 and resulted in 807 hits. Based on further filtering procedures, 270 studies were identified as full, empirical research papers and only 128 papers were identified as studies in the field of education and learning. Their findings indicate that most studies were related to the implemented affordances and psychological outcomes. Results of this empirical literature review mainly reported promising positive feedback. However, there were also mixed experiences and outcomes, therefore, the authors suggested that future research should also address different learning styles in addition to user's personality and demographic

characteristics in the gamification solutions and study design (Majuri, Koivisto & Hamari, 2018).

The findings mentioned above in gamified education and learning corroborate the findings of a study by Koivisto J. and Hamari J. (2019). They researched and analysed 273 empirical papers. The authors stated that the behavioural outcomes reflect the popularity of education as the primary domain for the study of gamification; course or assignment grades, and other forms of measuring academic performance are those behavioural outcomes that are more frequently studied. Among the most significant results reported in the identified controlled experimental quantitative studies (Koivisto & Hamari, 2019) were the following: 1) while positive research findings are frequent (28.7% of the papers), a clear majority of the studies still report somewhat mixed results, i.e. the papers report negative or inconclusive results in addition to positive results; 2) mixed but mainly positive results were reported in nearly half (47.0% of the papers); 3) entirely negative results were reported in 2 of the 66 quantitative experimental studies. By grouping the results by content, the largest domain was in the field of education/learning. Most of the studies reported positive results (35.7%). Mixed, but mostly positive results received a very similar result (32.1%). The next most significant domains (health/exercise and crowdsourcing) also showed mixed but mostly positive results. For the rest of the domains, the number of studies in each domain were three or less, so no meaningful conclusions could be drawn (Koivisto & Hamari, 2019).

2.1.2. Game mechanics

In this subchapter, we briefly review game mechanics, and, as our research focuses on a specific field of application of gamification, we will later narrow the list of game mechanics, specifying only those motivating employees to participate actively in the gamified on-the-job training. According to Huotari and Hamari (2017), incorporating the engagement and enjoyment of the gameful process into activities outside games is at the core of what is commonly called gamification. The potential of gamification lies in the restructuring of tasks and activities with game elements and gameful affordances. It may be reached by dividing a larger whole into subtasks with clear goals and providing direct feedback for accomplishments, reframing an activity by establishing a meaningful narrative, or by gathering a social community to provide support (Koivisto & Hamari, 2019).

In 2019, Koivisto J. and Hamari J. conducted a literature review consisting of 273 papers on gamification and game mechanics, aiming to analyse psychological and behavioural outcomes, as well as the most frequently applied game mechanics. Altogether, 47 different affordances were identified in the 273 studies (see table 1).

Achievement/progression		Non-digital elements	
Points, score, XP	138	Real world/financial reward	16
Challenges, quests, missions, tasks, clear goals	91	Check-ins, location data	16
Badges, achievements, medals, trophies	85	Motion tracking	10
Leaderboards, rankings	82	Physical cards	4
Levels	59	Physical playboard	2
Performance stats (includes visualization of agreement in crowdsourcing), performance feedback	46	Real world interactive objects	1
Progress, status bars, skill trees	32	Physical objects as game resources	1
Quizzes, questions	32	Physical dice	1
Timer, speed	23	**Miscellaneous**	
Increasing difficulty	11	Full game (also board games), also commercial gamification systems not described	17
Social		Assistance, virtual helpers	15
Social networking features	49	Virtual currency	10
Cooperation, teams	47	Reminders (to create engagement), cues, notifications, annotations	9
Competition	25	Retries, health, health points	7
Peer-rating, also betting to review work of others	17	Onboarding (safe environment to practice the rules), benefits for beginners	3
Customization, personalization	7	Adaptive difficulty	3
Multiplayer	3	Game rounds	2
Collective voting	1	Warnings	1
Immersion		Penalties	1
Avatar, character, virtual identity	29	Game slogans	1
Narrative, narration, storytelling, dialogues, theme	22	Funny movies	1
Virtual world, 3D world, game world	14	Virtual pets	1
In-game rewards	13	Trading	1
Role play	6	Making suggestions	1
		Virtual objects as augmented reality	1

Table 1. Affordances studied in the empirical research papers (Koivisto & Hamari, 2019).

For a better visual representation, they were grouped into five type-based subgroups: 1) progression-oriented, 2) social-oriented, 3) immersion-oriented, 4) real-world-related, and 5) miscellaneous. The most commonly used game mechanics are the various forms of points and scoring as well as different forms of challenges, clear goals, achievements and leaderboards. According to Zagal et al. (2005), in games' design points, achievements and leaderboards have been categorised as goal metrics that provide performance feedback to the player. Most likely, their popularity in gamified implications originates from their applicability to various types of existing systems (Koivisto & Hamari, 2019). The results of the study also analysed the affordances of these game mechanics employed. However, in many cases, several gamified methods

were applied, making it impossible to identify which of the affordances they employed or test the system as a whole environment and affordances in correlation with it. The study's limitations in gamification have already been mentioned by Hamari et al. (2014). In the literature, among the most studied affordances are points, badges and leaderboards (Zichermann & Cunningham, 2011; Chou, 2016). However, Chou (2016) suggested analysing game mechanics through the lens of games in order to understand how to combine different game mechanics and techniques to form desired and joyful experiences for everyone. He created an octagonal-shaped framework called *Octalysis*, which includes a significant number of various game mechanics he assessed by analysing video games. Some of the already mentioned game methods are split into several specific mechanics with the description of their applications, which makes the framework an accessible and affordable toolkit for game designers and developers of any gamified environment.

However, it would be reasonable to mention that most gamification designs are currently focused only on achievement-oriented mentalities and corresponding motivations. Nevertheless, research on the motivations to play games (Koivisto & Hamari, 2019) indicates that the motivators of user behaviour are diverse, including achievement-related methods, social aspects and role play. Such technologies as augmented reality could offer additional future directions for gamified methods. Furthermore, according to Koivisto and Hamari (2019), neither the theoretical nor the empirical issues of the overall gamification context are complete; the determinants behind the gamification affordances are currently not well analysed. The issues of the adoption of gamification, demographic factors and user perception have to be considered while implementing gamification. Therefore, in our research on gamification we expand its focus on such aspects that precede the effects of gamification on human behaviour and motivation, including user types, stages of mastery, multi-generational workforce and various motivational theories.

2.2. The motivation for on-the-job training

Once the employee enters the company, business is oriented to keep him longer. Among the first employee's experiences within the company is the onboarding process which includes on-the-job training. We decided to review how onboarding training could help to increase their loyalty to a company, reduce turnover, and how these investments of company's capital could additionally benefit the business? Why is the orientation training so significant and what kind of profits and benefits could it create for the company? By analysing those aspects, we could create the background for a powerful, competitive and complete orientation training framework for new employees, which increases their motivation, perceived learning and loyalty to a company.

Providing employees with on-the-job orientation training could be seen as the best investment of a company's capital, as its benefits could include the following list of advantages for the business:

1. Reduce turnover of new employees;
2. Increase employees' loyalty to the company;
3. Increase production;
4. Improve quality of the work;
5. Decrease the number of mistakes done by employees;
6. Decrease the absence rate;
7. Improve subgroups' relationships and better inter and intracompany relationships;
8. Improve customer service;
9. Reduce the onboarding time for new employees;
10. Improve the safety and ergonomics of the workplace.

This list briefly introduces the most visible benefits from implementing orientation training for the company's employees, but they could be adjusted based on the company's specifics and business/ department's related unique features.

According to Richard H Pfau (1998), all employees should be oriented or introduced when they join an organisation, are transferred within it or are promoted. Nowadays, in many companies, this orientation is poorly organised, and their poor practice has, in fact, lower productivity, customers', employees' satisfaction and perceived learning. Providing a list of documents to a new employee to read through could be seen as negligence, as it does not provide a positive impact on the company, in the most neutral case, the employee does not have sufficient knowledge, contrasting with the worst case, where an employee loses his loyalty and interest in the company's development and business in general.

The first days on the job can have a significant effect on an employee. This affect can be either positive or negative depending on what happens during that time, and as was shown in the Deloitte's survey above, the trend is rather disturbing nowadays. A new employee is anxious, is in an unfamiliar place and does not know quite well what the organisation will demand (Pfau, 1998). However, during this initial period, most employees are enthusiastic and eager to learn. Thus, the goal of the supervisor and manager is to keep and develop this commitment to learn, develop and maintain their willingness to succeed. Orientation training also provides the company with the chance to shape employee attitudes and increase his interest in staying.

It is worth mentioning that training starts even before the employee enters the company, already during the recruitment process HR department introduces the company's goals, policies, and culture. Therefore, it is typically a general orientation for the position he is applying for. To avoid disappointment, this part should be well performed. The next step

is conducted after the first or second day and should be well conducted, meaning that the process should not be rushed.

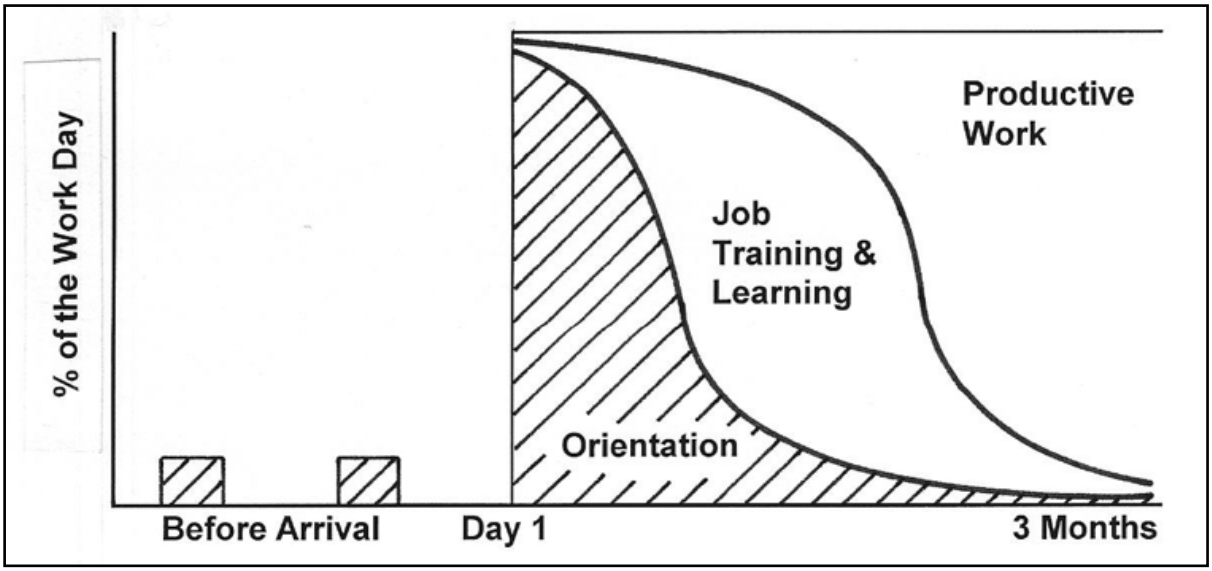

Figure 2. Time spent orienting new employees (Pfau R.H., 1998).

Figure 2 shows that the orientation could be as long as three months; however, it accounts for workload and the company's capital investment in new employees before they can start working productively. Therefore, from a business perspective it is necessary to decrease the time as much as possible, while improving productivity simultaneously - i.e. employees' loyalty, perceived learning, readiness to develop and grow within the company, decrease the number of mistakes, the rate of absence, increase production and quality.

2.2.1. Main constraints of e-learning materials. Theory of gamified learning

Even though gamification could improve user experience and be applied wisely to increase users' motivation and engage them in specific targeted behaviours, it has its limitations, or more pertinently, it has some preconditions. Therefore, in this subchapter, we would like to describe the theory of gamified learning, shown in figure 3, and point out critical issues to the success of any gamified training.

According to Richard Landers (2015), critical to the success of any gamification is that the instructional content already in place should be sufficient. The goal of gamification should not be to *replace* instruction, but instead to *improve* it. If the educational content does not already provide users with the desired learning level, the gamification of that content will not cause learning by itself. By gamifying any course in a teaching environment, such as a university, the instructor intends to gain a more significant

number of assignments that have been completed with greater enthusiasm. In order to increase the efficacy of this approach, effective instructional methods must already be used for those assignments; otherwise, the students will be motivated to increase their participation in irrelevant learning tasks (Landers, 2015).

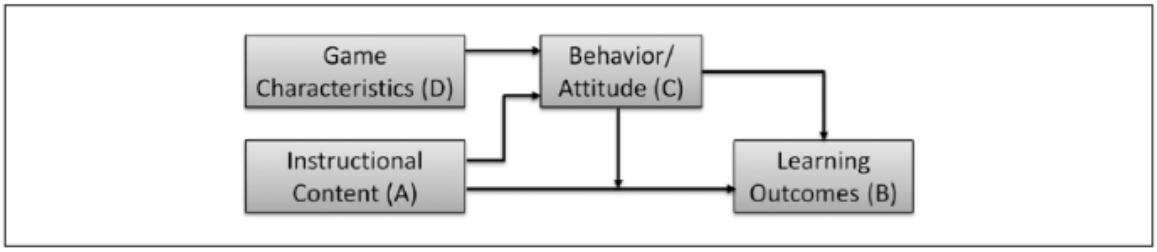

Figure 3. Theory of gamified learning. D-> C -> B and A->C->B are mediating processes. The influence of C on A->B is a moderating process. Directional arrows indicate theorised path of causality (Landers, 2015).

We assume that the same is applicable for the gamified training environment because it falls under the description of 'a serious game', which is defined by Michael and Chan (2005) as “a game in which education (in its various forms) is the primary goal, rather than entertainment”. These two definitions of serious games and the gamification of learning overlap significantly. The training of employees is considered to be in a non-game context; therefore, gamification could be a motivational toolkit to engage users in specific targeted training, while initially, the training content itself should be an effective instructional method. If a course were of low quality (e.g. if it did not incorporate valid pedagogical techniques and had a poor instructional design), the addition of gamification would not affect the learning. In this case, none of the gamifying elements would change the level of perceived learning.
The author wants to stress that the primary goal of this study is to present a framework for creating on-the-job training, which will help a business to ask questions in order to rectify their needs, possible and desired outcomes, primary user type and its core drives toward engagement and motivation. However, we are not analysing the instructional design and training educational content, presuming that they are already learning-relevant effective instructional methods.

2.3. Motivational theories

2.3.1. Human needs and flow experience

Game design is a new field that has connections to both psychology and system thinking. As the user plays the leading role, the player’s motivation drives the final result, once the company understands his motivation, it starts building a successful

gamification experience. Combining the desire and predictability of success, games could be a great motivator in improving the user's life. Nevertheless, to analyse this topic, relative theoretical studies on people's motivation and intrinsic and extrinsic motivation are discussed. Later we will analyse player's types and cover various of mastery, as well as game mechanics.

Abraham Maslow (1943), in his work, «A Theory of Human Motivation» studied the hierarchy of human needs, which is usually presented in the following way as shown in figure 4 (Zichermann & Cunningham, 2011).

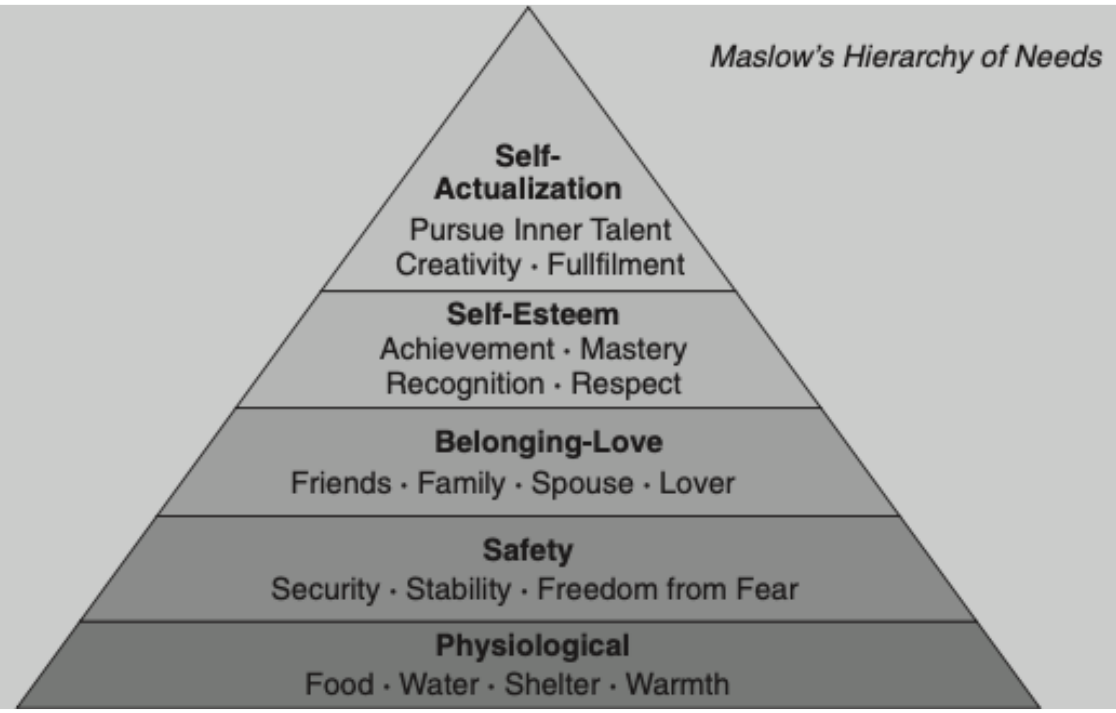

Figure 4. Maslow's Hierarchy of Needs (Zichermann & Cunningham, 2011).

His research focuses on people's needs and their satisfaction; the person will not be interested in the higher-level needs until previous levels are satisfied. In other words, while he is in a state of starvation, he is not motivated in belongings or self-esteem, until his initial needs are met. Only then will he be motivated to move further in this hierarchy. The pattern mentioned above could be well applied for the player's motivations in a gamified experience. Our study will later review different game mechanics and their correlations to the layers from Maslow's pyramid.

Another aspect of understanding player motivations is by questioning where motivation comes from. From a psychological perspective, our motivations could be intrinsic and extrinsic. Intrinsic motivations are those that derive from our core self and are not based on the world around us. Conversely, extrinsic motivations are driven by our entourage and rewards, such as the desire to make money. (Gamification by design, Gabe

Zichermann and Christopher Cunningham). In terms of gamified motivational design, it is worth mentioning Daniel Pink's book *Drive* (Pink, 2011), where he designates money as a weak reward for completing complex tasks. His study shows that money could not be introduced as a motivator for people performing creative and complex tasks. Therefore, he claims that monetary rewards are not an appropriate motivator for creative ideas and even in some situations, demotivate the user.

On the contrary, a suitable reward for creativity is long-term social status. Replacement of intrinsic motivation with an extrinsic reward could be easily achieved, but in some cases, such rewards crushes intrinsic motivation, which never returns. If a player is intrinsically motivated, but he's not good at his job, why would we want to preserve his intrinsic desire? Over-justification generally does not negatively affect players with excellent performance or strong personal motivation, though some rewards can be seen as manipulative or harmful if used in the wrong context (Zichermann & Cunningham, 2011). Extrinsic reward drags into a loop, once the company gave it once, it will have to keep doing it in the longterm.

Many advert campaigns employ loyalty programs, reward, coupons, which apply for goal-driven extrinsic motivation, that in fact is easier to implement in comparison with making the activity itself joyful, creative and involving. When a user is offered a reward, his involvement reduces, as it shifts the focus to money, and the brain - into market mode. While free, non-payable activity promotes a flexible and dynamic mind for creative and innovative ideas. Trying to motivate people with rewards, a company makes employees lose some social altruism and generosity, acting as a calculator to achieve a higher reward, it does not matter if the company is offering money or gifts, the same rules apply. Extrinsic motivation should be used wisely and only in the discovering phase of action before the user's first try and later transferred into intrinsic rewards and motivation.

Mentioning increasing difficulty levels of the game and sufficient competitiveness for users would be useful to describe the research made by a psychologist Mihaly Csikszentmihalyi (1991), who found that utilising high degrees of skills in challenging tasks results in deep concentration, absorption, or immersion which he named flow. This feeling lies between anxiety and boredom while experiencing involving and motivational tasks that are on the player's motivational level. Figure 5 below shows that flow is reached when the user's skills are correlated with his challenges, once the skill improves the challenge increases as well. Generally, flow states that only challenging tasks, which are correctly optimised would have a positive effect on the user as they keep him engaged in the process. Furthermore, in case of exceeding user's skills, it will encourage him to deepen engagement and as a result will increase perceived learning, e.g. in educational games.

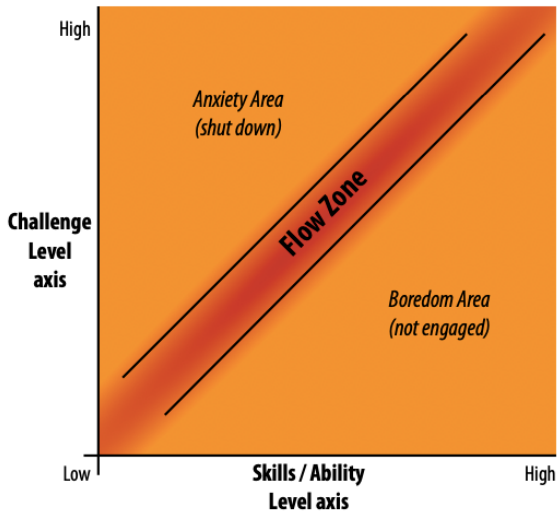

Figure 5. Flow theory (Zichermann & Cunningham, 2011).

The subjective experience of flow is enhanced by certain experiential conditions or properties of the task. The most central condition for flow experiences to occur is that the individual uses a high level of skill to meet a significant challenge (Hamari et al., 2016). Usually, the challenge-skill set is high and well balanced, which drives the user to a challenging goal. There are different combinations of correlations between high and low challenges against skills, which could be described as follows: (a) apathy, resulting from a low challenge and low skill; (b) relaxation, resulting from high skill but low challenge; (c) anxiety, resulting from a high challenge but low skill; and (d) flow, resulting from high challenge combined with high skill. Among all of them, only flow motivates the user to increase his level and transfer from novice to visionary (Strati, Shernoff &Kackar, 2012). Previous research conducted by Webster et.al (1993) has shown that the flow experience has a positive effect on learning because during such balanced activities, from a psychological perspective, a person is so involved in the task that nothing outside distracts him.

In the book, *The Art of Game Design A Book of Lenses*, Jesse Schell (2014) introduced the updated flow graph (figure 6) with a repeating cycle of increasing challenges, followed by a reward, the power shifts up and down with easy to achieve and challengeable tasks, providing both excitement and relaxation. Nevertheless, all these cycles still remain in the path between boredom and anxiety, in the zone of proximal development.

In the article *Digital game-based learning Towards an experiential gaming model* Kristian Kiili (2005) introduced a Framework of Flow experience in computer-mediated environments (figure 7), that comprises different factors of each stage of flow and components of the PAT - person, artefact, task - model.

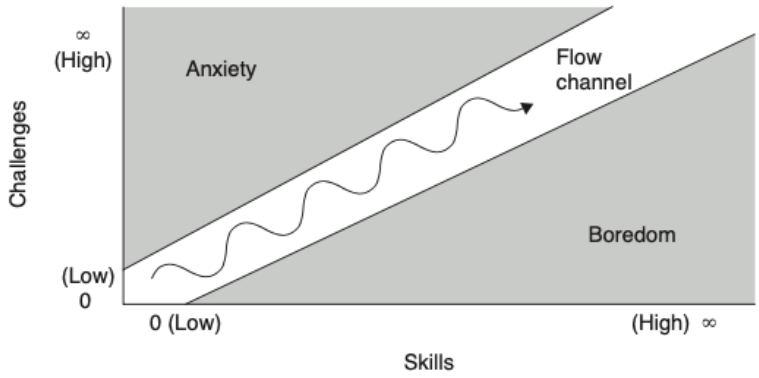

Figure 6. Adjusted Flow graph (Schell, J., 2008).

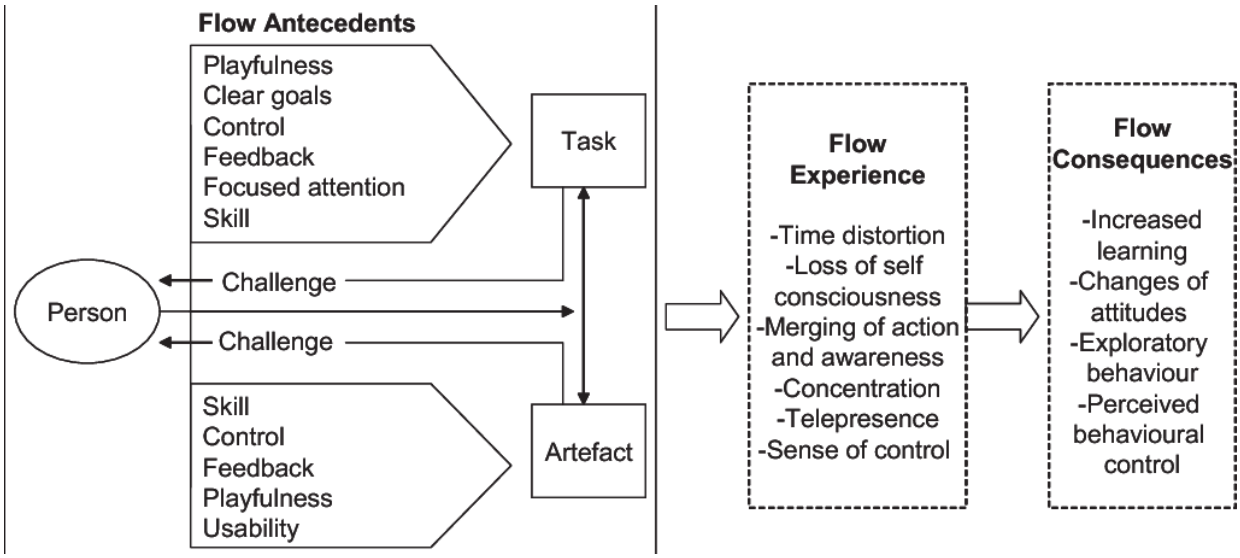

Figure 7. Framework of flow in computer-mediated environments (Kiili, 2004) .

The PAT model was first presented by Finneran and Zhang (2003). They studied the possibilities to experience flow within the interaction with a computer-based-activity and what influences flow: the person, the task or the use of artefacts (Finneran & Zhang, 2003). The framework links different concepts in one merged figure to summarise the flow antecedents based on the PAT model, dimensions of flow, and its consequences. Among such implications are increased learning (Skadberg & Kimmel, 2004), Increased exploratory behaviour (Webster, Trevino & Ryan, 1993), an acceptance of information technology (Ghani, 1991) and perceived behavioural control. Therefore, all factors - person, task and artefact - should be analysed when developing a training, education application or software. As flow experience provides the balance between challenges and tasks, good usability of an educational resource increases the

value of flow and user's attention in the task, where the best outcome is a perfect correlation between artefact, task and person's differences.

2.3.2. Core drives for user's motivation within a gamified experience

As was already mentioned in chapter two, Abraham Maslow's pyramid proposes five levels of needs that drive human activities, ranging from physiological needs to the need for self actualisation. According to the theory, the user must satisfy psychological and safety needs before processing to a more complex one (Zichermann & Cunningham, 2011). However, in order to enrich this theory from the gamification's point of view, Yu-Kai Chou (2016), adjusted this pyramid of needs and added a list of core drives that promote a desired user's behaviour within a gamified environment (see figure 8). Human-focused design, or gamification, according to Chou (2016), works for increasing human motivation and optimisation of a person's behaviour. The core function of human-focused design lay in the field of human motivation as opposed by «function-focused» applications, that focus on the finished work. This concept tries to analyse *why* people participate in gamified experiences, instead of answering the question of *what* are the main components of the game. Chou (2016) proves that not the game elements, such as badges or points, make the game breathtaking but the core idea behind them, or as he calls it *core drive*, which influences user's behaviour.

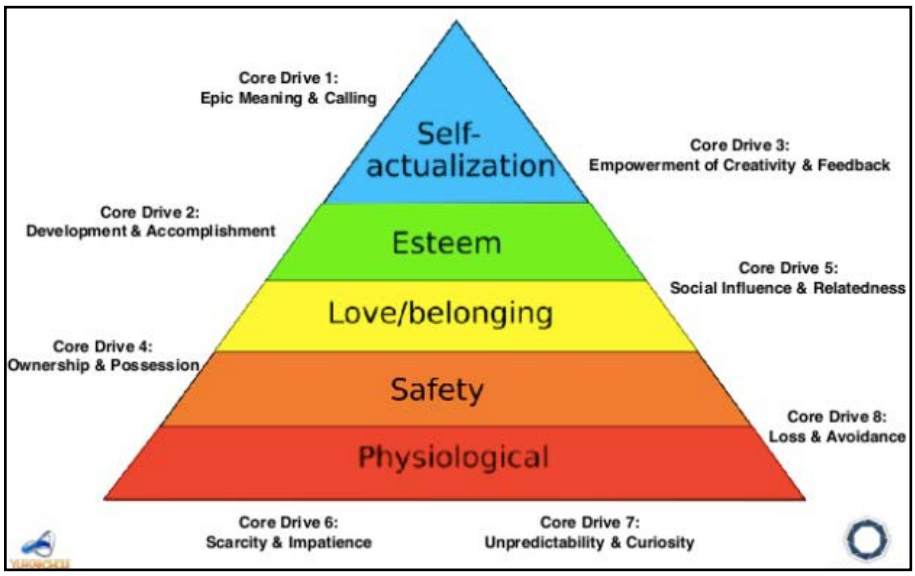

Figure 8. Adjusted Maslow's pyramid of needs (Chou, 2016).

As was mentioned above, figure 8 provides a visual representation of eight core drives that motivate user interaction within the game environment and could be applied in our study as a toolkit for the framework for creating on-the-job training.

The first core drive is epic meaning and calling. The person is motivated to create or to be engaged in something, that has a meaning for society or a group of people. Many games apply this core drive in the first few minutes, describing a catastrophe and that the player is the only person who could rescue society. The same applies to non-profitable applications, websites, like Wikipedia, where they work without any financial benefits or public recognition. They are driven by an idea more significant than they are, contributing knowledge for further generations. This core drive is a necessary part of the onboarding phase of the user's experience. The company has to engage the employee to the company's goals and mission, describing *why* he should be a part of this team; not promoting its products, but a definite vision worth following. In other words, epic meaning and calling relates to a compelling general vision or a goal.

The second core drive is development and accomplishment. People are motivated by completing a target and reaching a goal. It could be an educational plan, working goals or sport results, showing our development within a specific time. Points, badges and leaderboards are applied precisely to meet this core drive, making them the most commonly used gamified technics in the media and advertisement. To provide a sense of accomplishment, games award users with badges and medals, making users feel proud of themselves, but only if skills and challenges correspond correctly. If everyone can get a medal, it becomes useless. As was described in chapter two, flow emerges in the space between anxiety and boredom, where the user feels enjoyment. According to Kristian Kiili (2005), the flow experience characterised by the following dimensions (figure 7 in chapter 2):

1. Time distortion;
2. Loss of self-consciousness;
3. Merging of action and awareness;
4. Concentration;
5. Telepresence;
6. Sense of control.

Combing together core drive two and the flow experience, we integrate an enjoyment in the activity or task, making the player feel successful for reaching the goal.

Yu-Kai Chou provides an example from the field of web development which successfully applies core drive two - an online auction site ebay.com, that enables users to sell their goods to the rest of the world. Its success lays in the quick understanding of the impact of gamification in the design of an online auction with achievement symbols, win-state and proactive actions to bid against competitors. The user could achieve a gamified spirit by placing a final bid, that enables him to compete and win an item (the Win-state). Similar research was conducted by Chen et al. (1999), the authors applied flow experience in the context of web testing and the possible impact of flow theory on web design. According to their results, close to 40% of users (from N = 304 participants in total) experienced flow in web-related activities, that utilised flow aspects in their design. We could assume, that ebay.com makes users experience the flow, as soon as a

buyer succeeds with the bid, acquiring an item in the competitive environment that provides him a Win-state.

The next core drive three is the empowerment of creativity and feedback. It promotes a user's inner willingness to create something new, to influence the environment around him in the desired manner. However, it could be rather hard to implement this core drive in practice. This core drive provides the developer the possibility to implement in the gamified environment different levels and endless collaborative play options, even in a low challenge gameplay, a user could apply innovative ways to illustrate his inner creativity and be continuously engaged. The empowerment of creativity provides users with a choice between different playing styles: safer and longer vs riskier, with the possibility to end the game faster. According to Deci and Ryan (2000), «intrinsically motivated behaviour will most likely result from motivational needs for competence, autonomy and relatedness[…]. Where an autonomy refers to the freedom of choosing what challenges to undertake». These motivational needs, including autonomy, are commonly used in gameplay (Ryan, Rigby & Przybylski, 2006). This dynamic play is often applied in the most profitable and popular games, as meaningful choices allow people to feel empowered by their preferences and strategies. Generally, providing users with meaningful choices, the environment gives them a vision of the full autonomy, which often becomes a more significant motivator even more than monetary rewards. According to Jesse Schell (2008), this can be accomplished by 1) adding constraints to players choices, 2) incentivising players to make particular choices that meet the player's goals, 3) creating an interface that guides the user towards the Desired Actions, 4) adding visual designs to attract the player's attention, 5) providing social guidance (often through computer-generated characters in the game), and 6) music control that affects player behaviours.

The fourth core drive is ownership and possession, which acts as a powerful motivator for users, providing them with emotional comfort and a feeling of welfare. This core drive involves virtual assets, such as internal currencies, which could be compared to a collection of stamps or points in and outside the gameplay. Those points could be used in the game's economy or traded with other users in the system and beyond the game. The second subtype of points is status points, we have discussed them in chapter two by introducing Star Alliance's *Miles & More* Program, which changed the nature of the customer's cards and flying experience. Passengers earn points for their flights which will be recalculated in miles. *Award miles* or *status miles* could be collected in order to get a higher hierarchy level - starting from frequent-flyer status (level 1) to senator status (level 2) and finally to member of the elected HON-circle (level 3). Therefore, passengers are willing to collect those miles in order to receive a special status card. Interestingly, such programs as Miles & More visually display a personal history of product usage, his preferences and choices in a company's products and services, which, makes it possible to personalise the product to user's needs. It is known as the Alfred Effect, when users feel that the service is personalised for their needs and would choose

it, rather than others, on the market - making tailoring a great marketing opportunity for companies to win customers. Another market example with tailoring services is Netflix, that predicts which movies the user would like to watch depending on his previous experiences within their service and adjust his searching results accordingly. (Ha, 2014). According to Nobel Prize laureate Daniel Kahneman (2013), as soon as the person starts owning something, he promptly respects it as a more valuable item beyond other assets, which he doesn't own. The same affect applies when we just imagine the item as our own. James Heyman tested that theory on the auction sites, such as ebay.com, which we have already mentioned in core drive two, and verified that the longer the user owns the highest bid for an item, the more actively he acts in order to purchase it because he already imagines it as his asset (Heyman, Orhun, Ariely, 2004).

The fifth core drive is social influence and relatedness. This refers to the person behind the social interactions, such as mentorship, competition and companionship, i.e. social connections. The fifth core drive could be assumed a one of the most prolonged motivators for users to be the team members; and also implies the way we perceive social standards and social norms, and how they impact on our decisions and could change our behavioural models. The community could have some «social norming», which makes users compare their behaviour with the standards within a specific team and adjust them to fit the group's standards, even if the team will never recognise what they have applied. The leadership within a company and a team also applies to the social influence and relatedness but is more focused on core drive one (epic meaning), as opposed by team members that are mostly motivated by core drive five. The leadership promotes motivation for the group using goals and visions, while team members have a moral and ethical obligation not to fail the group.

Scarcity and impatience is the sixth core drive. When a user faces difficulty in obtaining an asset immediately, his passion for having it increases. Our brain searches for items which are unique, rare and hard to obtain, limitations make them more valuable for us. For any user, the value of an asset could be a determinant of its quality, impacting its perceived value. This core drive correlates well with the flow theory, introduced in chapter two. In the correlation with the scarcity and impatience, the flow could be seen from the perspective of the user's passion for achieving a complicated target.

The seventh core drive is the unpredictability and curiosity, which applies uncertainty in activities granting a level of opportunity for the desired result. Most activities that add a chance to win a prize automatically draw people's attention, making an activity «funny», referring to their intrinsic motivation and thought «could I be lucky?».

Nowadays, many marketing companies deploy such technics to engage users with their brand and service, for example, by providing a prize for the desired action, which could differ depending on the campaign and the goal of the marketing program. Desired actions could be «likes» on social media pages, «shares» to friends and colleagues, which in turn give a chance to win a promotional gifts, such as gift cards, free services or items.

The eighth and final core drive is loss and avoidance. This motivates the user through the feeling of lost opportunities. When he has a fear to lose something significant, for example, money, coins, invested time and efforts, and attends to prevent these circumstances, making him act in the desired way. Common coupons with limited usage time act in the same way, moving the user to purchase an item at a discounted price within a limited timeframe. This core drive implies the theory that people are more likely to adapt their behaviour to avoid a loss than to receive a profit. In his book, Nobel Prize winner Daniel Kahneman (2013) states that humans are twice as loss-averse compared to seeking a profit. In other words, we take the risk only if a possible benefit would be double the visible risk of loss. Nevertheless, the feeling of loss and avoidance only has a short-term effect, and it should be well analysed and combined with other core drives; otherwise, it could be counterproductive. Combination of this core drive with the ownership and possession is a popular technique used by many e-commerce web pages, where users are awarded some discounts or prizes for their attendance with a limited expiration time, and in order to save them, customers have to sign in or make a purchase.

2.4. Users' types

2.4.1. 4 Players' types

People are different, and skills/challenges sets are unique for most of them. So the general motivational rules are applied but with some amendments on a personal level, because the better the company knows the user, the easier it is to design a successful gamified experience that will drive him to a desirable result.

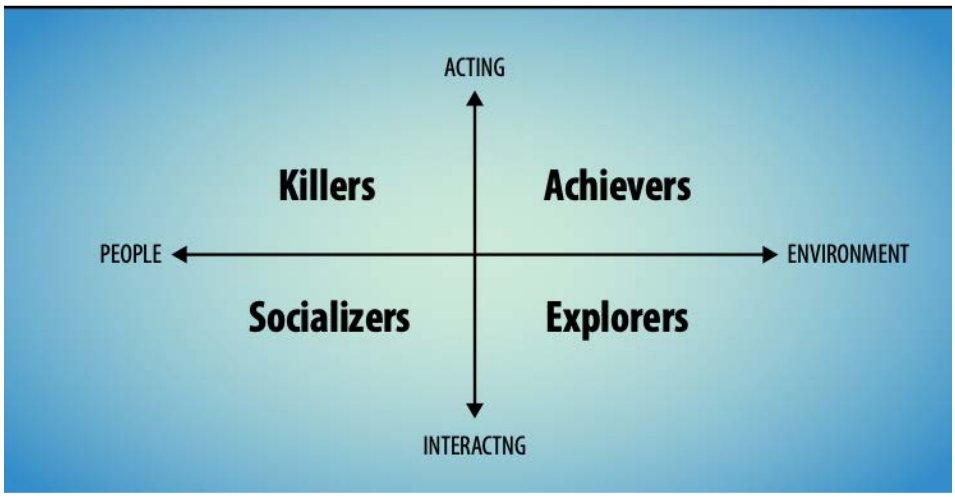

Figure 9. 4 Player's types (Zichermann & Cunningham, 2011).

One of the works covering player's types is written by Richard Bartle, who identified four players' types, which are described in figure 9 above (Zichermann & Cunningham, 2011).

Player's type	Description
Explorer	Explorers want to see new things and discover new secrets. They are not as bothered about points or prizes. For them, discovery is the prize. Explorers are fine with repetitive tasks as long as they eventually "unlock" a new area of the game.
Archiver	Achievers are all about points and status. They want to be able to show their friends how they are progressing. They like to collect badges and put them on display. This is the type of person who responds particularly well to incentive schemes such as Air Miles, where every additional mile collected is an achievement in its own right.
Socialiser	The vast majority of players are Socialisers. That's almost 80% of people who play games. Socialisers experience fun in their games through their interaction with other players. Socialisers are happy to collaborate in order to achieve bigger and better things than they could on their own.
Killer	Killers are similar to Achievers in the way that they get a thrill from gaining points and winning status too. What sets them apart from Achievers is that the Killers want to see other people lose. They're highly competitive, and winning is what motivates them.

Table 2. Player's types (Zichermann & Cunningham, 2011).

It is essential to mention that no one is exclusively a specific type from the list above, instead combines several types. Furthermore, the person's player type may change a few times within a life period, affecting his motivation to interact in a gamified experience. According to the book *Gamification by design* by Gabe Zichermann and Christopher Cunningham (2011), the majority of people, more than 70%, are socialisers, explorers and achievers each makes about 10% of the population, and killers account for 5%.

2.4.2. Stages of mastery

We have now described four players' types, but obviously, each of them has a different level of proficiency or «stages of mastery». In the late 1980s, Dreyfus performed research analysing the stages of mastery. Figure 10 shows these stages as a mountain to climb.

Figure 10. Stages of mastery (Zichermann & Cunningham, 2011).

Dreyfus found five core levels: the first one - *Novice* - a person who, faced with the experience for the first time, and a tool, platform seems to have little meaning. Novice is followed by the *Problem solver*, who on the contrary to him has some information already and tries to find solutions, instructions and contact persons to receive information. An *Expert* occupies the third level, the player already knows non-obvious data for a simple user, such as a specific number, timings, forms. He steps into the next level - *Master* - when he believes that he understands the procedure and controls the process, he could even identify himself with the system and process, keeping in mind his experience and knowledge in this field. The fifth level is a *Visionary*, who not only uses the system proficiently but is also enthusiastic in improving it. Surprisingly, no user is expected to become a *visionary*, in case the player accepts his level and prefers to remain a *problem-solver* or *expert*. The same applies to the gamified experience - once the user is satisfied, he could quit the system at any time. It highlights the necessity to provide the design to different levels of competencies, starting from *novice* and moving to *visionary*, thinking about gamified training, the first focus initially should be on the *novice* and *problem-solving* levels; otherwise, most users cannot apply the tool until they get proficient. Of course, the company must not lose the task for elder gamified experience, but there is no need to start designing it without a specific necessity (Zichermann & Cunningham, 2011). In chapter two, we introduced the frequent-flyer programs, which could illustrate this as an example. When United Airlines' Mileage Plus frequent-flyer program began in the 1980s, it was not conceived that players would

ever reach the million-mile flown mark. United Airlines discovered that those users who passed one million miles, reduced or stopped playing altogether. This meant that the most loyal player simply gets out of the game because without a continuation nothing motivated them to play. United Airlines added a three-million-mile reward and returned their loyal players, keeping the challenges' level in the game competitive enough for them.

2.4.3. The multi-generational workforce

Currently, there are four distinct generations at work, including the Silent Generation (born between 1928 and 1945), the Baby Boomer generation (born between 1946 and 1964), Generation X (born between 1965 and 1982) and the Millennial generation (born between 1983 and 2001), which will grow to 75% by 2025 (Morrell, 2018). From psychological and practical perspective younger and older employees have different motivations and drives to knowledge achievement; the older workers with sufficient working experience and knowledge are more oriented to the present and are more selective with their resources used (Zabiboni et al., 2013). At the same time, younger employees are more future-oriented and are interested in knowledge creation due to possible impacts on their careers and increasing opportunities to obtain other employment applying this experience.

A group of researchers (James et al., 2011), observed that older employees are often less engaged in education, waiting for their retirement, and are more focused on social emotions.

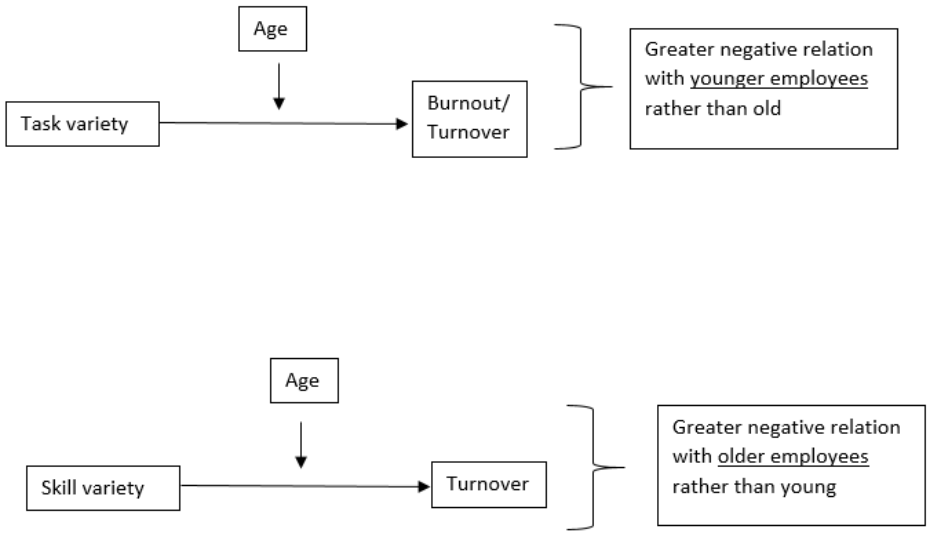

Figure 11. Tasks and skills impact on older and younger employees (Zabiboni et al., 2013).

The article *Predicting employee engagement in an age-diverse retail workforce* by James et al., (2011), shows how some factors can affect employees, according to their age differences, including supervisor support and recognition, schedule satisfaction, job clarity, career development and promotion. All of them promote the motivation of employees but have various impacts on older and younger employees (Pitt-Catsouphes, & Matz-Costa, 2008). The details are given in figure 11.
Moreover, tasks and skills diversity has an impact on employees, more negative relations with younger employees relates to a task's variety, where skills diversity has a higher impact on older personnel. It is shown in figure 12.

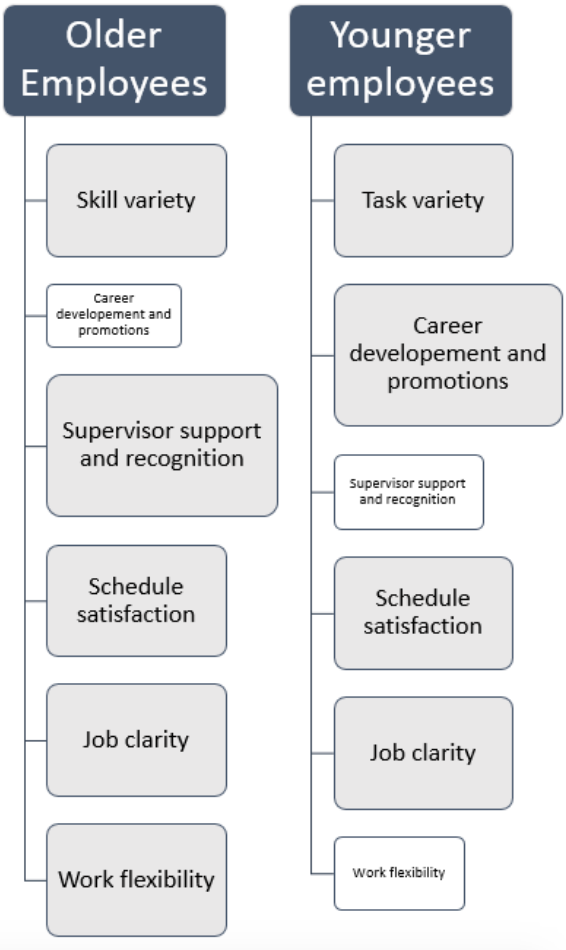

Figure 12. Summary of factors affecting employee engagement in older and younger employees (James et al., 2011).

However, our research analyses on-the-job training for employees, from whom the younger generation, Millennials present the most significant workforce nowadays, therefore we will further review this group of employees in details.
According to terminology, Millennials represent people who were born after 1983. The alarmingly low loyalty levels by Millennials to companies proves a challenge to any

organisation employing them. Millennials no longer have the potential to shape the fortunes of their organisations; many are already in positions to do so (Deloitte, 2016). Deloitte conducted one of the studies on this topic in 2016. Their research included participants from 29 countries around the globe, who were born after 1983, have obtained a college or university degree, are employed full-time, and predominantly work in large (100+ employees), private sector organisations. The research opens another lens through which motivation and loyalty of employees are perceived. These perceptions help to introduce a broader picture to answer questions related to our research and formulate a valuable framework solution. Nowadays, companies have to take into consideration not only the psychological aspects of motivation but also the existing tendency of unusually high turnover of employees. According to Deloitte's survey, if Millennials have the opportunity to move to another company, they will leave their current employer - 44 per cent in only two years, two of every three - within four years, and the alarming thing is that only 16 per cent of Millennials will stay in a company longer than five years. For Millennials in senior positions, this tendency is relatively the same. Figure 13 shows critical areas, including improving the skills, income, and "satisfaction levels" of employees; creating jobs; and impacting positively on users' goods and services.

Figure 13 . The perception of priority by Millennials (Deloitte, 2016).

Deloitte's findings on Millennial turnovers corroborates with findings conducted by Gallup. Gallup's study examined workplace engagement and showed that only 29% of Millennial workers reported being engaged, while 16% reported being actively disengaged (Adkins, 2015). Millennials do not appear to value the role of work in their lives, defined as work centrality, as much as previous generations. Within one of the

studies, conducted by *Monitoring the Future*, they determined the key differences existed between high school seniors from each generation concerning attitudes toward work centrality, leisure and rewards. Their results showed that Millennial employees' attitudes differ in the workplace, compared to their Generation X and Baby Boomer managers (Morrell, 2018). For Millennials, personal leisure time is more important than the rankings from previous generations, having the highest score on wanting a job with more than two weeks vacation and the lowest rank within three generations in willingness to work overtime.

Concerning rewards, findings from *Monitoring the Future* showed that Millennials were less inclined toward receiving both extrinsic and intrinsic rewards than Generation X (Morrell, 2018). However, both studies conducted by Gallup and Deloitte found that Millennials rank overall compensation behind 1) development and advancement opportunities, 2) quality of manager, 3) quality of management, and 4) exciting work (Deloitte, 2016). Therefore, companies should search for the right combination of rewards, including both extrinsic and intrinsic, to recruit, motivate and retain Millennial employees. These solutions should be customised to the employee for maximum effectiveness, independently of his generation.

Chapter 3. Constructive research - a framework for the gamified on-the-job training

Thus, so far we have mentioned and discussed different theories related to user's motivation based on 1) their needs, 2) player type, 3) stage of mastery, 4) correlation of his skills and challenges in a training environment, 5) influence of his age, and 6) level of loyalty to a company. In this study, we want to introduce a framework that will help companies to implement successful on-the-job training which is personalised based on the aspects mentioned above. While organising the structure of this study, we were faced with a confusing topic related to the borders and the sphere of influence where such a framework will be applied. As the above theories show, people's motivation correlates with the behavioural science and the way one is motivated to a desired action. However, when starting to create a framework applying game mechanics we were automatically shifted to the UX - user experience design, as the practical implications of those theories end with the user - computer interaction in a training environment (according to a specified and narrowed research question). Each lens of motivational theories provides a specific practical solution for our framework, forming ideas on how to implement it in a better way. As we are not planning to produce a specific design solution, we stayed focused on the user experience only, not including UI - user interface design, which will be the further development step for possible research.

Furthermore, we are not just creating a fun and gameful experience, instead, a business-focused solution to decrease turnover, improve employees' loyalty to a company, increase work quality, improve subgroup's relations with an enterprise, and other

possible business goals and needs. We assume that we will provide a solution for a business, focusing on the specific needs of the company. Therefore, while designing a user experience, the company should take into account business return on investments (ROI), as a performance measure to evaluate the efficiency of an investment. The definition of these three elements provides a picture of the sphere of influence of the research's framework we intend to introduce.

We could summarise, that previous subchapters have covered these three topics in detail by discussing behavioural science, attainable business goals for on-the-job onboarding training and existing core drives with corresponding game mechanics. Therefore, it is time to present the framework for creating on-the-job training, taking into consideration already mentioned core drives for employee's motivation and suitable game mechanics to accomplish them and, additionally, introducing previous studies that act as the background models for the framework.

3.1. Research objectives and approach

This research was carried out in two phases related to the necessary activities of design science: building and evaluating (March and Smith, 1995). In this statement, design-science is interpreted as constructive research with the movement from the initial state to the final phase, aiming at constructing a new artefact. According to Lainema (2003), the term artefact is used to describe something that is human-created, while March and Smith (1995) differentiate four types of artefacts: constructs, models, methods and instantiations. Prat et al. (2014), in their study about artefact evaluation in information system design-science research, argued that design science in information systems lacks a systematic list of evaluation criteria for artefacts, and that an associated set of evaluation methods and evaluation criteria is fragmented in the literature. Therefore, researchers created a list of information system artefact evaluations, which we will adhere to in this study.

Simon (1996) views design artefacts as systems with their functions, goals and evolution. Gregor (2010) also considered IT artefacts to be systems, as their components include: 1) purpose - the concept of a goal, 2) scope - frontier with the environment, 3) form - structure, 4) function - the activity of the artefact, 5) artefact mutability - evolution (Gregor and Jones, 2007). From our point of view, information system artefacts relate to the categories model and method from March and Smith's typology mentioned above and comply with the system dimensions theory followed by Gregor. Such an outlook gives us a holistic approach to an artefact's evaluation, its criteria and dimensions.

Based on the classification mentioned above, we assume that the primary artefact of our study is a ready-to-use framework for creating on-the-job onboarding training and related knowledge. We settled upon following the classification provided by March and Smith (1995) and evaluation methods established by Prat et al. (2014).

As discussed in chapter 3 this study, we will introduce a framework that might help companies implement a successful personalised on-the-job training which is based on various motivational theories. The structure of that artefact appears to be unique since it is three-dimensional. The dimensions are the following: user experience design, behaviour science and business ROI. Each lens of motivational theories provides a specific practical solution for better functioning of our framework, business goals impact tasks of the training, and the user experience design acts as a tool kit to implement them in practice. Applying March and Smith's methodology, we assume that our artefact lies in the field of information system design science intending to evaluate and develop a framework for on-the-job training development which reflects the primary outcome of this thesis.

To find a suitable evaluation method, we addressed the study carried out by Prat et al. (2014). Within various techniques, they indicate quantitative and qualitative forms of evaluation (Cleven et al., 2009), analysis and logical reasoning or formal proof (Hevner et al., 2004). Quantitative assessment leads to a measured or perceived numeric value. Its objectivity characterises a measure (metric). Perceived value may be estimated directly or through items. By varying the conditions of the four characteristics of the evaluation criteria (a form of evaluation, secondary participant, level of assessment, and relativeness to evaluation), multiple generic evaluation methods can be defined. Various features can also specify a process. Based on the list of possible evaluation methods, and given blurred lines between the framework's intersections, we assume that the best way to evaluate the effectiveness of an artefact is to apply the process «Demonstration of the use of the artefact with one or several real examples». This method assesses two criteria - goal and efficacy - in the form of analysis and logical reasoning. Demonstrating the use of the information system artefact in one or several real examples is a common way to verify the artefact's efficacy. We will apply it in our research by creating a new on-the-job onboarding training following four critical steps of our framework for a specified narrowed list of employees, creating a list of user experience characteristics to be further transferred into the user interface design.

3.2. The framework for creating on-the-job training

While presenting the PAT model in chapter two, we also mentioned that all factors - person, task and artefact - should be analysed when developing a training, education application or software. As flow experience provides the balance between challenges and tasks, good usability of an educational resource increases the value of flow and the user's attention in the task, where the best outcome is a perfect correlation between artefact, task and personal characteristics.

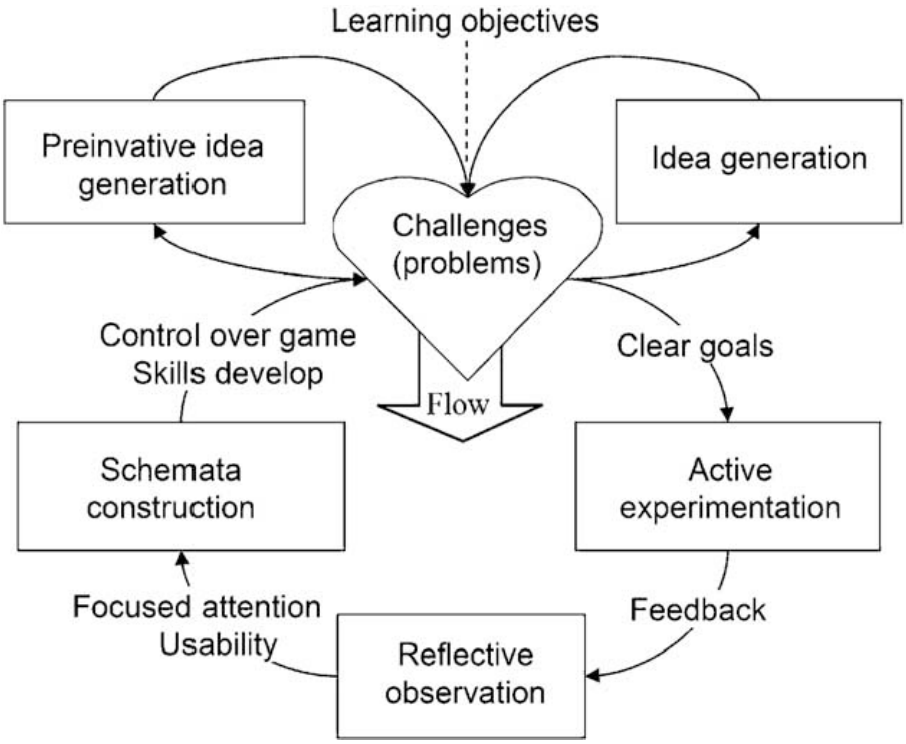

Figure 14. Experiential gaming model (Kiili, 2005).

Figure 14 introduces the theory presented by Kristian Kiili (2005) in his research on digital game-based learning. The author analysed educational games by integrating educational theory, game design aspects, and the flow theory, resulting in the creation of the experiential gaming model. The model consists of an ideation loop, an experience loop and a challenging bank. The task of the first section is to sustain the user's motivation by providing appropriate challenges to him and successfully enforce flow experience. After the ideation phase, the player tests solutions in the experience loop and observes the outcomes of his chosen actions. The game should be usable and provide clear goals and appropriate feedback to the user in order to facilitate the flow experience (Kiili, 2005). The author stated that online learning environment comprehension is facilitated by applying conversational tools, rational tutorials and computer-based tutors. Only one solution leads to results, and gaming strengths are connected to those schemata, one-sided activity may become exhausting for the user, reducing his motivation in the long run. Generally, the task of the ideation loop is to initiate creative solutions to be tested within the experience loop.

The trick of gameful experience is the increased likelihood of experience flow as far as the skills and challenges of the user are matched to each other. However, it is always difficult to predict how quickly the user's skills develop and match them to similar challenges. One solution is to design training that is personalised to the user's level or provide the employee with the possibility to choose a corresponding level of difficulty. The focused attention implied in the form of game features aims to support reflective

thinking and knowledge construction by focusing the attention of players to relevant information from a learning point of view. The training environment should help the user to focus on relevant information, reduce the excessive cognitive load and increase the relevant cognitive load needed for knowledge construction (Kiili, 2005).

In our study, this gaming model provides a meaningful baseline for developing our framework for creating on-the-job training. However, as it lacks any specific tools and methods to gamify the training, we decided to apply the Octalysis framework (Yu-kai Chou, 2016), which describes various gamified solutions, as a tool kit to establish specific terms of game mechanics, core drives for the user's motivation and concepts of human-focused design.

The framework creation started with the initial review of a formative development method for digital learning environments in learning communities (FODEM) created by Jarkko Suhonen (2005). His idea was to provide a three-step method to create digital learning tools and environments using FODEM: (1) needs analysis, (2) implementation, and (3) formative evaluation. First, needs analysis specifications are defined. Secondly, implementation, fast prototyping in authentic learning settings is emphasised. Thirdly, formative evaluation is used to evaluate the use of the environment. We assume that the structure of FODEM allows the development process and corresponding technical design environment to be developed. However, FODEM does not analyse in detail the first step, and the way the user's motivation could be enriched; therefore, we see some limitations before the model could be transferred to the next phase - technical design environment. We focused our attention on that phase and created a framework for users, such as HR, business managers and those responsible for a successful training implementation within the business environment to increase one's motivation and loyalty to the company. The framework includes four key steps: 1) tasks, 2) methods, 3) outcomes, and 4) risks.

The experiential framework model can be used to design and analyse gamified training. However, the model works only as a link between motivational theories and game design and does not provide the means to a whole game design project. Several issues should be considered when designing on-the-job training that is not included in the framework. Among steps and benchmarks introduced in the framework, the company should also pay attention to the learning material, storyline, graphics and sound, various combinations of skills/challenges within the path between boredom and anxiety, in the zone of proximal development, to keep the user's feeling of flow.

As mentioned in chapter three, we operate in the intersection within business ROI, user experience design and behavioural science, wherefore, as a baseline for the framework the initiator should provide business goals that management intends to reach. Within the list of the company's desired tasks and possible challenges, we intend to split the enormous variations of answers into four sections: 1) attitudes and feelings, 2) knowledge of the organisation, 3) knowledge of the job, 4) other. The initial intent for such separation is to guide the inexperienced user within the framework to ease his job,

reducing the number of the evaluation cycles in the further steps. The framework shows the correlation of tasks and outcomes, but they are split into two separate steps with a methods key point in between, reasoning this solution with the logic behind both of them. The first step intends to identify the goals and challenges within a training environment, while the third step is focused on the user's inner feelings (psychological outcomes), perceived learning (technical and pedagogical outcomes), socialisation (psychological and pedagogical outcomes), and other. Therefore, tasks from the first step could have a connection to one or many outcomes depending on the viewing perspective.

Based on initial input on the company's tasks, the framework requires the user to fulfil the following steps 2-3-4, by adding corresponding core drives, game mechanics, identification of desired outcomes in the cross sections of four characteristics - psychological, technical, pedagogical and other - and, finally, analysing possible subsequent risks, such as anti-core drives or wrong outcomes. Keeping in mind the cyclical nature of the framework, the fourth step within the first evaluation cycle is not the end phase and requires the user to rectify all results by returning to section two repeatedly and enter changes to the chosen gamified methods. In the following evaluation cycle, the user may finalise desired methods to be applied and assess corresponding risks as being negligible for a company that, conversely, will move the framework to the final stage of the process - a ready-to-use description for the user interface designers and programmers. Figure 15 visualises the steps mentioned above with an easy-to-follow colourful map that guides the user toward a desired result.

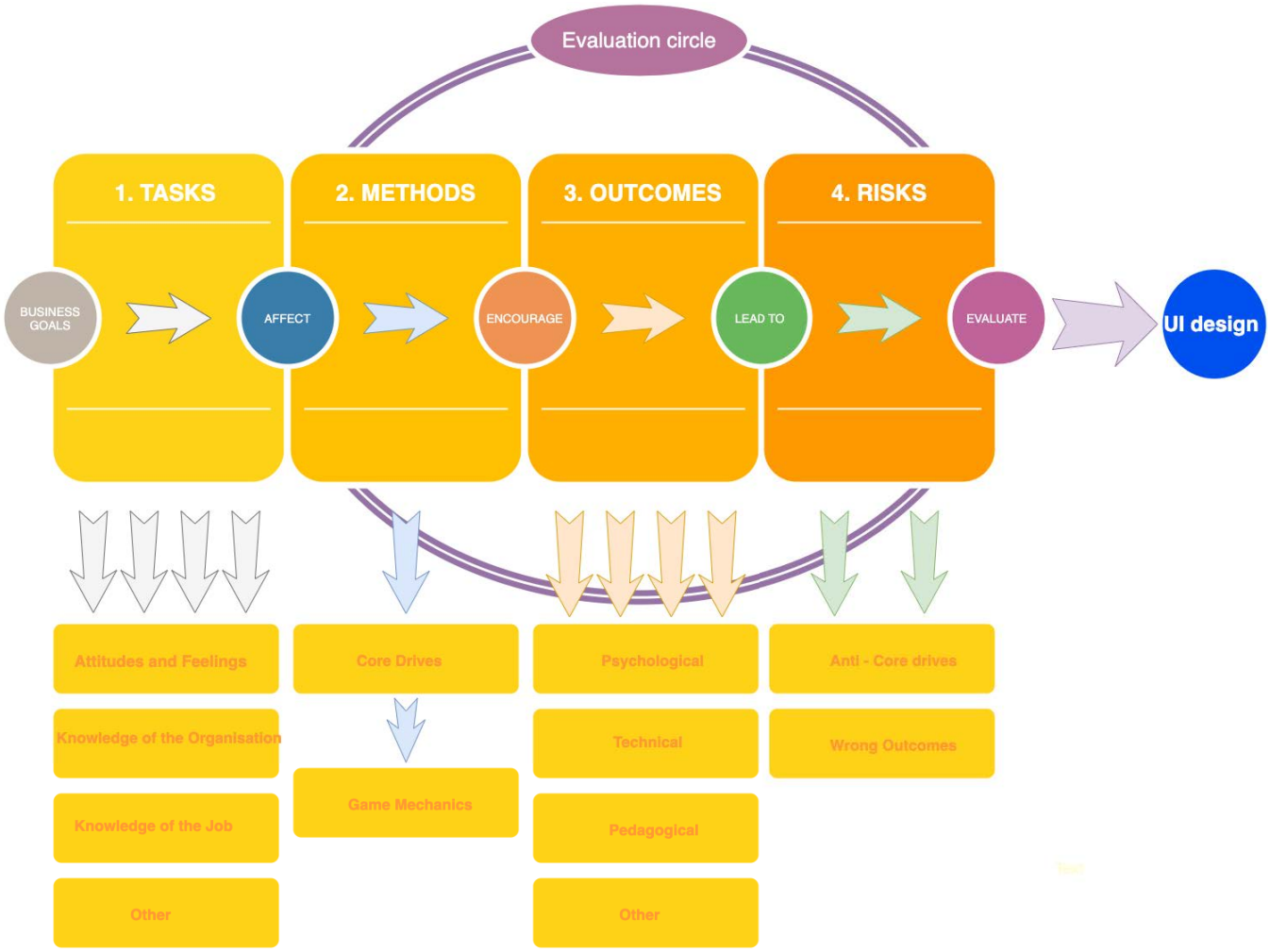

Figure 15. Framework for creating on-the-job training.

3.3. Framework evaluation - the creation of on-the-job onboarding training

The theoretical framework has to be proven and tested within a working environment, firstly, by identifying any weak points to be changed and, secondly, by reinvigorating it in real-life conditions. Driven by the relentless pursuit of an idea to facilitate and support better development of trainings for employees, which includes highly motivational and valuable content and user experience, we wanted to create a useful tool for business to decrease development costs and workload, and at the same time improve employees' loyalty to the company and reduce the turn-over of newly recruited personnel.

Once the employee enters the company, his first working experience, among others, is the onboarding process which includes on-the-job training. The issue of the importance of onboarding training was introduced in chapter 2, describing business benefits and the list of advantages for the enterprise, identifying such training as one of the most beneficial investments of a company's capital. According to Richard H. Pfau (1998), all employees should be oriented or introduced when they join an organisation and transferred within it or be promoted. Today, in many companies, this orientation is poorly organised, and their practice has resulted in lower productivity, and insufficient customer and employee satisfaction and decreased expected learning outcomes.

However, by applying our framework, we anticipate that these challenges will be solved. The evaluation of this framework demanded a thorough financial and business approach from the managerial perspective to tackle the company's goals for on-the-job training. As identified in chapter two Motivational theories, a target group of users should be determined to personalise their experience. Therefore, we decided to narrow down the list of labour to a specified type of users, which would act as the subject for our evaluation. The selection criteria for this list were defined under the relation of the specified employees and the whole personnel. It is essential to mention that among all the theories, there is a countless list of various characteristics and segregations. However, due to the study's size limitations, we will focus only on the previously described motivational theories and features analysed before. Therefore, the narrowed down list will include Millennials, socialisers, new employees. Given this focus group, we created a list of possible challenges within a company and goals for onboarding training and listed them in table 3. We realise this list is by no means exhaustive, as different sectors of the economy and even departments within one enterprise may have various visions and open tasks for such training.

1. TASKS			
Attitudes and Feelings	Knowledge of the Organisation	Knowledge of the Job	Other
Welcome new employees and help them to feel at home.	To acquaint new employees with the organisation's background, goals, philosophies, management style, structure, products, and services.	To communicate from the start of employment what the organisation expects in terms of work performance and behaviour.	Acquaint newcomers with their fellow employees.
Put the employee at ease.	To present information on organisational policies, procedures, compensation practices, and benefits.	Deliver essential information on the employment relationship.	Orient newcomers to their physical surroundings so that they can function effectively.
To promote the personal well-being of beginning workers.	Give newcomers an understanding of the rules and conditions under which they will work.	To transmit the culture of the system to beginning workers.	Promote two-way communication.
To reduce the common anxiety of new employees and help them feel a part of the organisation.	To give new employees accurate and useful information about the organisation, the employee services it offers, and the personnel policies that will affect them as well as all other employees.	To impress upon new employees the importance of their roles in ensuring complete customer satisfaction.	Assimilate the employee into the organization.

1. TASKS			
Develop in new hires a feeling of belonging together and a sense of satisfaction in being members of the organisation.			To satisfy mandated requirements created to introduction and certification.
Maintain the motivation of new hires, or their desire to succeed, at the same level, or higher than that at which they joined the organization.			
Develop positive perceptions about the organisation.			
To promote in new employees positive attitudes about their jobs and the organization.			
Build an identification with the organisation.			
Bring about a commitment of new hires to organisational goals.			
Develop in new hires an acceptable conformity to the organisation's formal and informal rules of behaviour.			
Establish high performance expectations.			
Confirm the employee's decision to join the organisation.			

1. TASKS			
To increase the retention of promising beginning workers.			
To encourage a spirit of inquiry in new employees show them how to learn, and assist them in the acquisition of additional knowledge.			
To convey to employees the importance of their jobs to the overall success of the company and to make them feel a part of the team from the first day of work.			

Table 3. Tasks. (Adjusted from Pfau, 1998).

Table 3 lists company's tasks for on-the-job onboarding training. They are divided into four intersections, corresponding to their background: 1) attitudes and feelings, 2) knowledge of the organisation, 3) knowledge of the job, 4) other. As mentioned before, this list hardly covers all possible challenges and goals, but it provides an apparent list with a clear structure, easily adjustable for any enterprise, based on its needs. Depending on the cumulative number of chosen goals in the table, the user has to identify which core drives are dominant and wisely apply the number of gamified methods aiming at those specific goals. According to our tasks, among all of the challenges we assume the most valuable and essential are - attitudes and feelings, therefore, we aim for the following core drives for on-the-job onboarding training: core drive one - epic meaning and calling, core drive three - empowerment of creativity and feedback, core drive five - social influence and relatedness, core drive seven - unpredictability and curiosity. As far as the definition and the list of core drives belong to Yu-Kai Chou and his *Octalysis* framework, we assume that it would be reasonable to add the visual representation of the chosen core drives in the form of the original *Octalysis* Framework picture (figure 16), as well as the list of possible game mechanics to be applied. However, it is not necessary to apply them all at once, but rather the list should be narrowed down based on the company's resources, available labour, timeframe and further business circumstances.

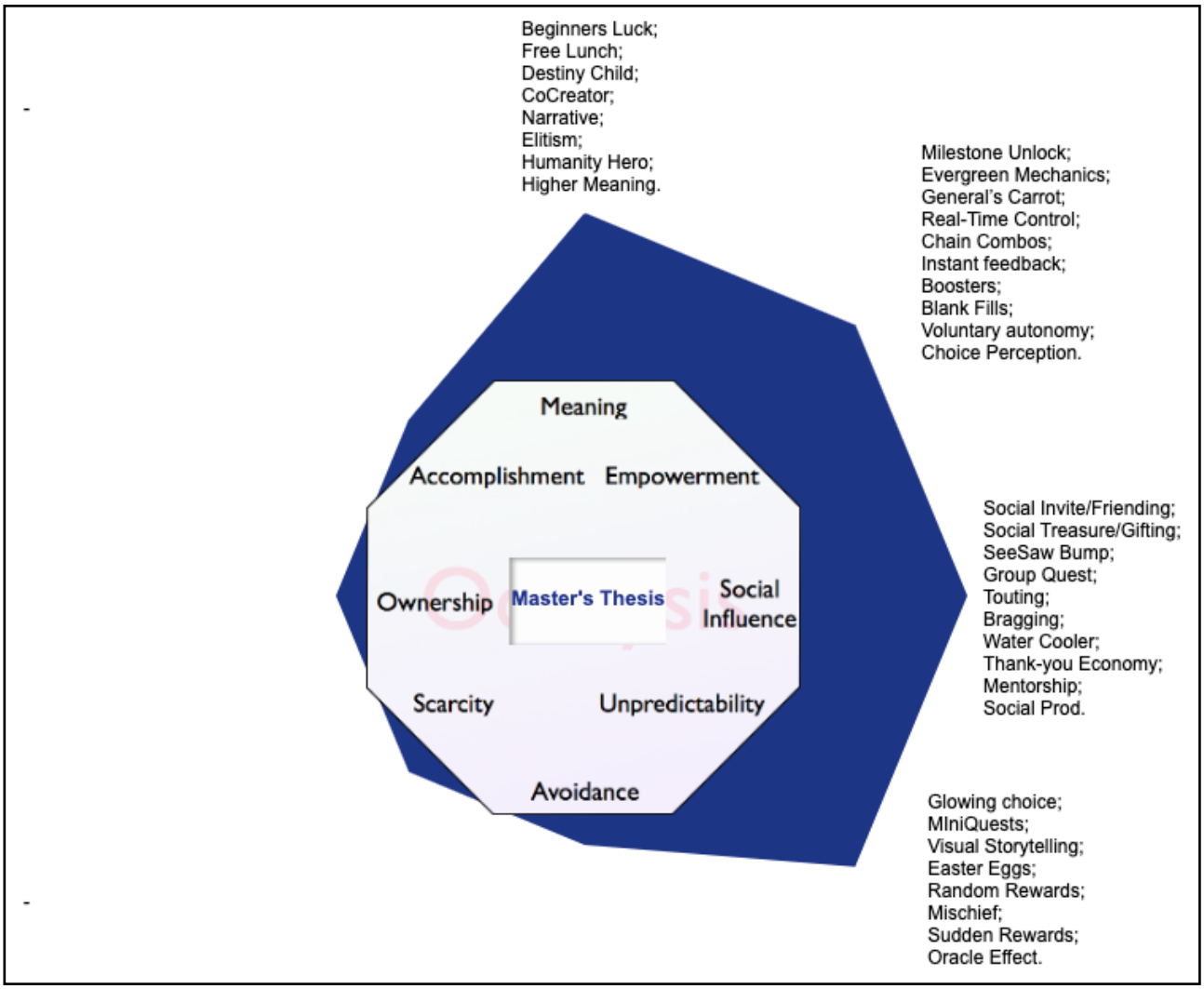

Figure 16. Core drives and game mechanics for onboarding on-the-job training (Adjusted from Chou, 2016).

In the previous chapter, we discussed that intrinsic motivation is derived with the help of core drives 3,5,7. Therefore, the actionable way to add intrinsic motivation into the training is to think about how to implement those core drives. The onboarding process for an employee is the right time to introduce the epic meaning and calling, keeping in the mind the low level of loyalty to the company in our target group, for example, by adding a story about the significance of the experience and why the user is unique for this task or challenge like most games apply. However, unnecessary long text or video should be avoided when introducing the topic. What most studies suggest is a 1-min animated video or a sliding storyboard that has 3-4 images along with 1-3 sentences,, allowing users to absorb information at their own pace.

As our target group consists of Millennials, socialisers and new employees, the fifth core drive social influence and relatedness is among those mostly demanded. As we have stated before, possible business include: 1) create a feeling of belonging together and a sense of satisfaction in being members of the organisation; 2) develop an

acceptable conformity to the organisation's formal and informal rules of behaviour; 3) to convey to employees the importance of their jobs to the overall success of the company and to make them feel a part of the team from the first day of work. In order to facilitate these tasks, experienced employees should establish a mentorship for newcomers within a training environment, that applies various methods from core drive five. It is much better to foster collaborative play within the desired action, where users can help each other, socialise, and grow together. Another option is to add more group quests where users can work together, apply their unique knowledge, and accomplish tasks collectively, which in fact would make the activity itself more joyful and motivating to all team members.

In many cases, it is reasonable to introduce some mystery or unpredictability in order to motivate experienced users to participate in the training, like in a popular TV series every episode is intriguing by a continuously built feeling of suspense, which leads users to continually think about what will come next and prevents user's drop out. Some of the game mechanics imply variable reward, which is likely to build positive anticipation and unpredictability. Of course, the reward itself is extrinsic motivation, but when it is variable, it involves intrinsic excitement, a company should also take into account the action to obtain rewards, it has to be relatively short and easy.

Furthermore, empowerment of creativity and feedback makes the process more "playful" and generates ever-green mechanics that keep the user engaged. The user experience design should allow users to make meaningful choices to craft their own experiences, choose different paths to obtain various power-ups that work together towards different goals, and optimise the combination of such paths. Invoking the flow theory and allowing users to personalise their training in the preferred way to strategise and optimise the combination of skills and challenges, the training's environment keeps the path between boredom and anxiety, in the zone of proximal user's development. Among many implications of flow theory in practice are increased learning (Skadberg & Kimmel, 2004), increased exploratory behaviour (Webster 1993), an acceptance of information technology (Ghani, 1991) and perceived behavioural control. Most of them are shown in the list of possible challenges and tasks (table 3), therefore, contributing to a sufficient level of flow for the specific user will implicate the outcomes as mentioned above.

Following the four-step framework model, we are automatically transferred to the third step – outcomes. Table 4 summarises outcomes based on their origin - 1) psychological, 2) technical, 3) pedagogical, 4) other.

3. OUTCOMES			
Psychological	Technical	Pedagogical	Other
Get introduced to company's mission and goals	Get information about Company's Software and applications	To acquaint new employees with the organisation's background, goals, philosophies, management style, structure, products, and services.	Reduced dropout rate
Develop in new hires a feeling of belonging together		Get knowledge on Company, main products, commitment ti the Customer and Company's history	Improved and faster onboarding process
Build an identification with the organisation and employees		Get a review of company's procedures and instructions	Effective introduction to the physical surroundings to promote successful functionality
Social integration		Improved knowledge of Company's Software and applications necessary for a job	

Table 4. Outcomes.

We should mention that under outcomes, we analyse the user's level of perception, not a company's level. For example, the improved knowledge of a company's software and applications necessary for the position, on the user's level will indirectly impact the outcomes on the company's level by reducing the number of mistakes within the working process, decreasing working hours and raising productivity. As we focus on

user's motivation by applying this framework and in order to avoid confusion and misinterpretation, we include in the list only outcomes relevant for the employee, not the company. The same approach is applied to the perception's level of risks, taking into consideration the indirect gains or losses for the enterprise at the final stage.

In this evaluation, we focus on the on-the-job onboarding training and from the game's perspective, it is one of the initial steps of a gamified experience - discovery and onboarding phases. Both of them introduce the training environment, company, tasks for the new employee and therefore, should be designed and developed correspondingly. According to Yu-Kai Chou (2016), to attract the user into an experience, it is better to use extrinsic rewards, and later turning to intrinsic rewards to ensure their long term engagement. It would make users enjoy the activity itself, focusing on relishing the experience without thinking about gains and benefits (extrinsic rewards). The London School of economics, after many studies, stated that financial incentives might reduce intrinsic motivation and diminish ethical or other reasons for complying with workplace social norms such as fairness. As a consequence, the provision of incentives can result in a negative impact on overall performance (Irlenbusch, 2009). The experience in onboarding training should involve playful, fun activities, affecting user's creativity and keeping his mind in a flexible and dynamic condition, otherwise with offered rewards one's mind turns to complete a task, reducing the playful creativity and overall performance.

Therefore, the combination of extrinsic and intrinsic motivations should be well analysed to avoid anti-motivational effect on the user, focusing on intrinsic motivation and user's creativity, even though it is much harder to implement. Epic meaning and calling used as a core drive one could be one of those ever-green game mechanics and intrinsic motivator for the user, as it applies as a background the humanity and co-creation (as well as the same-named game mechanics), involving the user in the company's mission.

One of the game mechanics under core drive social influence and relatedness is competition, which needs to be thoroughly analysed while implementing competitions in the workplace. Unclear or dysfunctional workplace competition would lead to daily stress instead of increased user's motivation automatically harming an enterprise. The stressful environment could lead to increased burnout and dropout rate. One of such examples is an employee's promotion based on rankings among his peers.

Therefore, workplace competition could be a destructive instrument on the one hand. Conversely, collaborative team dynamics are much more motivational, where the entire company stays competitive against the industry giants that are stagnant and competing internally, for example, by applying a collaborative group quest as a game mechanic. Group quest is an opposed action to an individualised leaderboard, where collaborative play helps preserve and improve a positive corporate culture, as well as support and encourage the development of talent and skills. At the same time, it increases

competitive strength where it matters – outside the marketplace. Group quests are very useful in collaborative play as well as viral marketing because it requires group participation before any individual user can achieve the Win-State.

After the first evaluation round, we could also provide some already proven gamified methods that could be useful for creating on-the-job training for our target group of users. Below we describe a few of them in this subchapter to give the reader a broader vision of possible solutions.

In order to meet psychological outcomes stated in table 4 above, including 1) developing a feeling of belonging together; 2) social integration, and such pedagogical outcomes as 1) get a review of company's procedures and instructions, the company could imply mentorship. It is a powerful tool in every medium of activity that requires sustained motivation, such as on-the-job training. Mentorship could provide directional guidance, emotional support and reduce time-consuming actions. This practice has endured for centuries and confirms its benefits and efficacy in the onboarding phase of members joining the organisation, and a mentor helps new employees connect with the culture and working environment. For the experienced users (according to the theory on stages of mastery, being presented in the second chapter) this method could be beneficial, as it keeps them engaged during the whole process. In terms of on-the-job training, we could imply this tool as a gamified method for improved core drive five - social influence and relatedness. It would help new employees and in turn would receive accumulated mentorship hours, that are exchangeable on extrinsic or intrinsic rewards. Within this collaborative play, the users not only learn and socialise but also grow together. Also, consider adding in more Group Quests where users can work together, utilise their unique strengths, and accomplish tasks together. It frequently makes an experience more intrinsically motivating and enjoyable.

Among ever-green gamified methods are those related to empowerment of creativity and feedback. It could be archived by adding constraints to player choices, create an interface that guides the user towards desired actions, add visual and audio support to attract the user's attention to the training environment. Users could personalise the level of difficulty and decide on their own whether to play it safe or to take a risk. Variability of levels' difficulty is one of those options that could also attract experienced users in the gameful experience, promoting mentorship as a mediated result. By using techniques that are designed for curiosity and unpredictability, companies can drive their users to engage with training and retain them much longer. However, by giving a choice to personalise the level of difficulty, the enterprise should still guide the user toward desired actions and exclude stumbling situations, when the users cannot figure out what to do.

Curiosity could be accomplished by using a mystery box gamified method when the user expects a reward, but its content is unknown, building positive anticipation and

unpredictability. Keeping in mind that a reward itself is extrinsic, the company should better add a layer of intrinsic excitement to it, focusing on curiosity first.
We have identified beneficial gamified methods that could be implied for creating on-the-job training, even within this list the question lies in how to implement, not only the method itself, such as quests and competition, for example. Therefore, in practice, a few evaluation circles should be brainstormed before the final state can be reached, and the model could be transferred to user interface design stage.

3.3.1. Framework discussion with the target group of users

To evaluate the framework model from the user perspective, we decided to conduct a series of five interviews with five people, including three university students with different working experiences, one worker with secondary education with five years of employment history and one middle-level manager with ten years of working experience in international companies. All of them are Millennials and socialisers; three out of five users will start their working careers this year. The author of the study presented them the framework for creating on-the-job training and asked the same list of open-questions; all interviews were held separately with each participant and took one to two hours in total. All results were recorded, summarised and analysed for any similarities and shared ideas. The most relevant and useful comments for further studies are listed here using the user's quotations and author's analytics at the end.
All five participants stated that they clearly understood the meaning, goal and outcomes of the framework, and they would recommend applying it in the working environment. As far as they also fall within our target group of users (Millennials, socialisers, new employees), we asked them about their perception of such kinds of gamified training. All five users replied that they would prefer to use gamified training in their working environment rather than simple e-learning materials and that it would increase their loyalty to the employer's enterprise. This result correlates with the Deloitte survey (Deloitte, 2016) and the gamification survey conducted by TalentLMS (TalentLMS, 2019) presented in chapter two, which confirms the assumption that gamification should be introduced in on-the-job training to increase user's motivation and engagement. TalentLMS showed their results with the key findings corresponding to the received feedback, where almost nine in ten employees feel happier when they use gamified software at work, and as the additional benefit of gamified experience is boosted, competition and easiness among 89% of the users creates more productivity at work. TalentLMS involved almost 600 millennial employees, with an average age of 37 years, in their survey on gamification at work. By using gamified software instead of a theoretical model, they could examine the gamified solutions from a practical perspective. In contrast, we received an expected response and reaction to the gamified training from users in the interviews, based on their expectations.

The form of the framework, colour palette, links and directions are easy to follow and understandable. The easiest step for three participants was the fourth step, namely the risks, as they had some information in that regard from their own work-life experience and university studies. The other two users expressed their full understanding of the business goal and task creation steps. All participants agreed that the second step, namely, the methods, seemed to be the most difficult to implement as it required additional knowledge on various subjects, such as behaviour science, user experience design, motivational theories, gamified methods and previous market's solutions.

While discussing various gamified methods, one student stated that: "*group quests would enrich the trainee's experience and help me to socialise with my teammates, and it would be easier for me to keep in contact by applying social networking at the beginning of the online training platform than by real-life communication*". Four out of five participants within reasonable methods for socialisation stated that mentorship applied to enrich user experience is a perfect solution and would be highly ranked by them.

As far as the framework connects businesses with programmers and developers, a few questions were related to the manager's thinking, and the user was asked to think as a middle-level manager to analyse his further actions based on the framework. One participant mentioned: "*Assuming that I am a manager and want to implement such training, this means that I should exactly know my personnel, which is not mandatory correct; therefore, I will lack knowledge of the psychological characteristics of my personnel and therefore could apply the wrong core drives and game mechanics.*" She further stated that there is a necessity to "*extend the framework covering user types of analytics for those managers who lack knowledge on their personal, psychological education, background and understanding of motivational theories*".

The middle-level manager from the HR department stated that the framework could have a visible impact on the training's development process, but from her perspective "*to connect business managers and programmers/ designers in the negotiation phase an experienced person or a team with the knowledge in the question of gamification, motivational theories and user experience design would be of great help to apply the framework correctly and to avoid any additional evaluation rounds. It will lead to a reduction of costs*».

Other valuable feedback relates to different levels of authority in international companies, stating that those accountable for the development and implementation of training are not mandatory aware about company's business tasks; therefore, the first step will be split in time and within accountability. One participant asked if it would be possible to extend the evaluation circle to include negotiation on tasks and goals on the second and further rounds, as those responsible for training development and suitable game mechanics are not mandatorily accountable for the detection of business goals and needs. «*It could happen that the process will be split in time after each evaluation round*

to receive feedback from all accountable employees within teams, which makes the process time and money consuming».

All of the participants agreed that from a management perspective, they would assume to get predefined solutions for different users' groups, as well as survey results on previous successful gamified training, including the list of outcomes with percentages and identified risks to be avoided in their companies.

Chapter 4. Conclusion

In this research, web-based learning software and applications, including on-the-job training, are analysed from the perspective of users' motivation to join this endeavour, rather than their learning content, or purely entertaining activities. The thesis presents the construction process of the framework model that can be used to create on-the-job training in a way to make them user-focused, providing the feeling of *flow* and enriching users' experience with motivational gamification methods. The framework helps designers and programmers infer the underlying logic of training with the game, moving from purely declarative knowledge to gamified solutions that emphasise creative problem-solving, knowledge creation and adaptation of information. Among other benefits, we observe the increasing social interaction, identification with the organisation and employees, higher commitment to the company's goals and missions combined with an increased sense of loyalty for the company.

The principal objective of this thesis was to introduce the framework model that would support business while creating on-the-job training, aiming at increasing employees' motivation and loyalty for the company. The framework includes four key step: 1)Tasks, 2) Methods, 3) Outcomes, 4) Risks, and was presented in the third chapter with clear descriptions of every of the above-mentioned development key points. Generally, the framework could be used to design and analyse gamified trainings; however, the model serves only as a liaison between motivational theories and game design and does not provide the means to a whole game design process. Several issues should be considered when designing on-the-job training that are not included in the framework, as they lie beyond the scope of this research - including learning material, storyline, graphics, sound and various combinations of skills/challenges in the path of *flow* experience.

Critical to the success of any gamification in educational or training environment is the effective instructional content, because the gamification itself cannot replace instruction, but instead improve it. Various studies in the educational field confirm such limitations of gamified education, providing partially positive or mixed results. The root cause of mixed or opposing outcomes may derive from insufficient instructional content, achievement-oriented methods or improper evaluation of motivational aspects. The adoption of gamification, demographic factors and user's perception have to be considered while implementing gamification.

In the third chapter of this paper, the experiential framework was studied through on-the-job onboarding training. The framework turned out to be a useful tool in analysing business needs in this sector, as well as various factors that motivate employees to actively participate in the training environment and determining possible risks that could cause demotivation of the personnel. This framework's implementation in onboarding training processes provides us with a good starting point to further develop this theory as well as evaluate and measure the framework's efficacy and applicability, going beyond on-the-job training.

In the first evaluation, we conducted several interviews to present the framework to users and get their perception on the framework's applicability. All participants stated that they clearly understood the meaning, goal and outcomes of the framework and would recommend for their working environment. Moreover, they have suggested some practical solutions that could enrich the framework, for example, the insertion of predefined solutions for different users' groups.

We assume that the first evaluation should be extended to measure the level of effectiveness of the final product - onboarding training, created based on this framework. For instance, there are two types of data needed to be collected to obtain a better understanding of how well an onboarding program operates. The first is quantitative, and the second is qualitative. Quantitative data is numeric information that can be easily tracked and measured. This information is supposed to reflect the changes in retention rates and productivity as long-term measurements, and number of trainings completed, as well as total hours within the training environment, number of publications in local social networking systems, leaderboards rates, which are short-term measurements, that are easier to attain. It helps obtain insights as to what is working and what is not. Qualitative data is information that can be observed rather than counted. This information can be gathered by conducting interviews and surveys. Asking employees about their thoughts and feelings about their onboarding experience allows us to better understand the feedback and emotions behind the numbers. Together this information can give one a comprehensive picture of how effective the onboarding program is currently and if any areas need to be improved.

Further evaluations could also have another way of perception. Instead of creating a new training based on the framework, the study could examine already existing training systems and try to validate which tasks the enterprise had, what core drives they applied successfully, which outcomes they have received based on that training environment and, most importantly, what are the possible upgrading options for enhancement of their employees' motivation. Both evaluations in the future would help bring this study to the next level, focusing on various solutions for extending the framework to enrich its usability and applicability, as well as add new dimensions to make it possible to apply the model to changeable user types.

This study used several previous gaming models, as well as the formative development method for digital learning environments in learning communities and a list of game

mechanics from the *Octalysis* framework. However, keeping in mind the growing trend of gamification's popularity, this list of possible game mechanics is continuously expanding, providing us with a baseline for further tools in creating trainings. Such technologies as augmented reality could offer future directions for gamified solutions going beyond the diversity of experiences that game mechanics currently can afford.

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