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Gamification Framework for Marketing Courses

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ABSTRACT

Gamification is one of the relatively new educational approaches that have been proven to produce positive result. The research in this paper was intended to contribute to the gamification of learning movement as well as raise awareness of the subject by proposing a framework of gamification specifically for education in marketing-related subjects. Thus, the major research objective was to formulate a gamification framework specifically for marketing courses. Accordingly, to provide reliable results with practical value, the research was split into three main parts: theoretical part, framework design and testing of framework.

The framework design was strictly based on the conceptual framework analysis. Main components of the framework include marketing curriculum analysis, generic gamification framework and Bloom's taxonomy of learning.

Testing of the framework was conducted at Lahti University of Applied Sciences. A simulation of the relationship between marketing executives and customers was designed for the test based on the GFMC. The experiment result and interpretations implied a rise in students' interest towards business decision-making and marketing.

Ultimately, L&D progress will lead to a variety of novel educational approaches. It is concluded that gamification is one of the relatively new approaches that have been proven to produce positive result. The research in this paper was intended to contribute to the gamification of learning movement as well as raise awareness of the subject.

Key words: marketing, gamification, game elements, education, course design, interactive learning experience, learning and research, L&D

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Finally, I reserve my sincerest gratitude for Jimmy Wales, Larry Sanger, Larry Page and Sergey Brin for their excellent services. Without them, it would be impossible to write this thesis in a reasonable time.

True story.

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1 INTRODUCTION:

The introduction provides general information about this thesis. First, it discusses the background behind the research topic. After that, it states the research questions, limitation and the methodology of this research. Finally, it provides an overall structure of the chapters and the relationship between them.

1.1 Thesis background

Gamification is a recent term that was coined in 2002 by computer programmer Nick Pelling to describe the practice of using game-like elements outside of games (Werbach & Hunter, 2012). Even before the term existed, many businesses had increased sales through applying such technique to form customer habits, employees training and recently, marketing. Gartner Inc. (2011) has mentioned in its press release that more than 70 per cent of Forbes Global 2000 companies will utilize at least one gamified application. It is high time to examine gamification as a corporate practice with the intent to fully exploit its potential for commercial benefits.

Marketing, simply put, is the action of promoting products and services performed by organizations. The wide definition of marketing includes *everything* (Kotler & Keller, 2012), i.e. through exhaustive research and study of the academic community, marketing has become a complex activity in which everything matters. A broad, combined societal and economical point of view is necessary to design, develop and conduct marketing activities. As our academic prowess on marketing grows, so does the emphasis on marketing education. In fact, marketing and marketing related courses already made up a large part of any BBA program. However, how to motivate learning remains a concern (Ainley, 2006).

Though scholarly discussion of marketing is common (Gordon, 2000; Bal, 2014; Mochalova, 2014) little is known about its relation to gamification. However, if the end goal for gamification is a *specific behavior* (Deterding, 2012); this behavior could as well be *devotion to learning*. With that in mind, this thesis objective is to find the point where marketing and gamification overlap and how to take advantage of that overlap, education-wise. The end goal is to develop a

framework, which includes known game elements that can be integrated into current approaches of teaching marketing.

1.2 Research questions

This research aims to improve the overall teaching quality of marketing curriculum by introducing a novel methodology in course design. The main research question is *'Can a marketing course be gamified?'*

The following sub-questions have been formed to provide a clear structure for this research:

- What is gamification?
- What is the psychological framework behind gamification?
- How could gamification enhance students' learning experience?
- What is the structure of current marketing curricula?
- What is a conceptual framework? What are the techniques to develop a framework?

By answering the aforementioned questions, a holistic view of what gamification is as a new practice and where it stands in comparison to marketing principles can be established for further application/discussion.

1.3 Limitation

The scale of this research is its first limitation. This research is conducted in Lahti University of Applied Sciences. While Finland has a uniformed education system in which all universities are expected to have the same qualifications, the findings in this paper might not be appropriate for other universities of applied sciences. The author of this thesis believes that it has to be tested to be concluded otherwise.

Secondly, there is a lack of prior research on the application of gamification. As a practice, gamification is not new as the first recorded application can be traced back to the 1980s (Grifin, 2014). As a research subject, gamification did not yet

gain popularity until 2010 (Chorney, 2012). This resulted in a lack of academic research from prestigious institutions, as is often the case for a new subject. The study in this paper mitigates this limitation by consulting existing studies exclusively from the most credible sources available and data collection is based on a trial and error approach.

Thirdly, as a direct consequence, some data presented in this study are self-reported. This research acknowledged the fact that data collected from questionnaires, interviews and experimental game sessions were taken at nominal value. Data, which was incongruent with other sources, will be noted.

1.4 Research method & data collection

As the objective is to design a framework for gamification, conceptual framework analysis is the foundation of this research. Thus, the structure was based on Jabareen's (2009) research on designing conceptual framework, illustrated by Figure 1. Detailed methodology was presented in the literature review section (point 2.2).

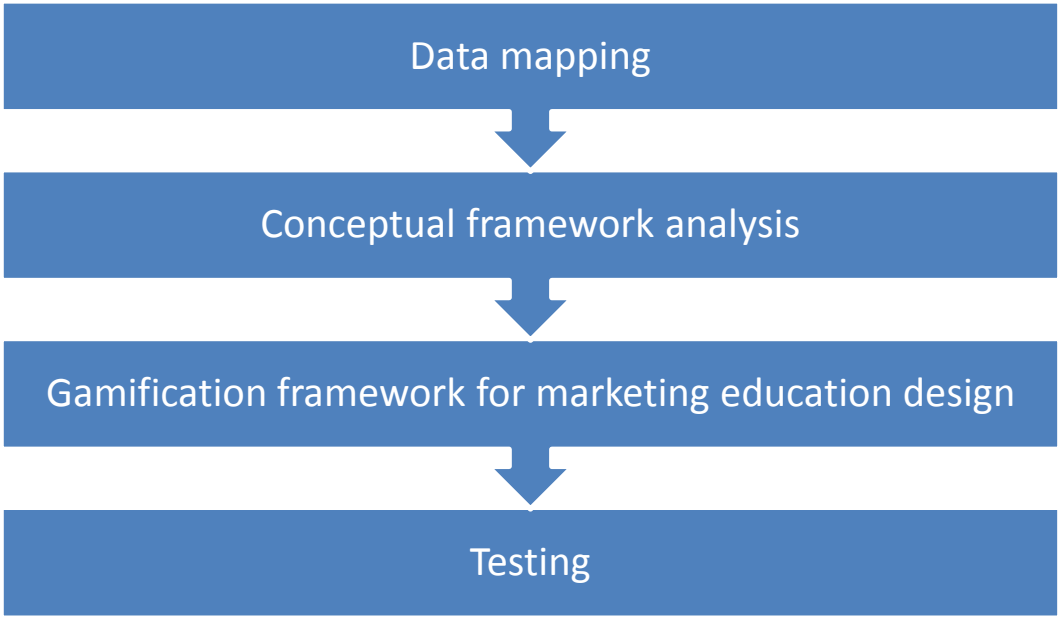

FIGURE 1: Research Structure

During the process, data was collected primarily from field study, current researches and literature on the subject. Empirical data and observations were acquired during the testing phase of the framework.

1.5 Thesis structure

This thesis was divided into seven chapters: introduction, literature review, gamification and education, gamification framework for marketing education, experimental simulation, further research and summary.

Chapter 1 served as a brief introduction to the overall research theme for this thesis. Background information, research questions & limitation, research method and thesis structure were presented in this chapter.

Chapter 2 was divided into two points: gamification and conceptual framework. Point 2.1 reviewed literatures on gamification in order to give a general overview and systems of gamification. Point 2.2 went through previous researches on conceptual framework, effectively explained the procedure by which the framework at chapter 4 was designed.

Chapter 3 covered the other theoretical aspects of this study. It described the effects of motivation on studying, and the effectiveness of gamification in such context. This chapter clarified the assumption that gamification could aid marketing education, which was the hypothesis of this research.

In chapter 4, a framework for applying gamification to marketing education is presented as the outcome of this research. The framework was tested post-development and test results were reported in chapter 5.

Lastly, chapter 6 brought conclusion to this study by highlighting major findings and interpretation while chapter 7 suggested further research.

2 LITERATURE REVIEW:

This chapter discusses published literature in gamification and conceptual framework. The review includes current theoretical and methodological findings of gamification and conceptual framework of social phenomena.

2.1 Gamification

This part of the literature review is intended to provide basics knowledge on gamification as a general practice without going deeper into detailed applications. First, it presents brief background information on gamification. Then, it discusses game elements as the core theory of gamification. Finally, it provides information on the general design framework for gamified application. A more detailed review on gamification of learning is represented in the third chapter of this paper.

2.1.1 Background information

There are at least two ways to approach gamification; each has its own spectrum of meanings and relevant topics. One way is to look at gamification as a broad concept, which considers games and gamesome experiences integral part of human society and culture (Fuchs et al., 2014). This means that practices, rituals, festivals and general way of how things are run with various historical and cultural backgrounds could be a game or bear resemblance to one. From this perspective, gamification becomes an ancient phenomenon deep-rooted in human civilization rather than a trendy buzzword in the business world.

It is, in a sense, a trendy buzzword in the business world. The approach of marketing gurus and professionals to the subject has brought up this second and acclaimed definition of gamification. In a paper published at the Mindtrek'11 forum (Tampere, Finland), Sebastian Deterding, Rilla Khaled, Lennart Nacke and Dan Dixon (2011) offered a straight forward definition: *""Gamification" is the use of game design elements in non-game contexts*". The definition suggests its relation to *game*, rather than *play*. In gamification study, it is advisable to remember the distinction between those two concepts in order to design a system

that is beneficial to a business. Play refers to a broader, freer form of entertainment, often improvisational whereas game implies the constraint of rules, structure and a clear goal (Salen & Zimmerman, 2004). Such structure with its collective constraints allow for cross application outside of its original field for non-entertainment purpose.

Year 2011 marked the period of time when gamification was formulated into a concrete concept. The marketing sector began to promote gamification as a way to improve customer loyalty, employee's engagement, word of mouth and ultimately, a source of potential income. However, that was at the same time the source of criticism of gamification. In an article, which has received a lot of attention, Bogost (2011) argued that gamification was marketing bullshit in the sense that it capitalized on the need for reassurance of brand managers, offered only temporary results that served primarily the benefit of advocates with questionable expertise. In other word, it was just another manipulative marketing trick that even marketers do not trust. Another statement was made by Gartner in its press release in relation to such issue. The research company predicted that by 2014, 80 per cent of gamified application would fail because of poor design (Gartner, 2012). Their main argument was that gamification failed to capture the meaningful behavioral interactions that make games powerful and instead fell short on trivial elements such as points, badges and ranking systems. Apparently, this implied a lack of effectiveness.

Nevertheless, the practice of simply adding a point system to an existing process could be called "*pointsification*". While it is true that most gamified process fell into such category (Robertson, 2010), there are more to gamification than just points and badges (Werbach & Hunter, 2012). It embodies design, psychological aspects, business practices and social media competency to create an engaging experience that leads to real business result and change of behavior. This thesis was based upon the hypothesis that, gamification, if done correctly would be a sophisticated engagement technique that result in actual profit.

2.1.2 Game elements:

Game elements could be categorized into three groups: dynamics, mechanics and components (Werbach & Hunter, 2012). Each item of these groups is linked in a hierarchy to one or more higher leveled counterparts. The follow figure illustrates the relationship between game elements.

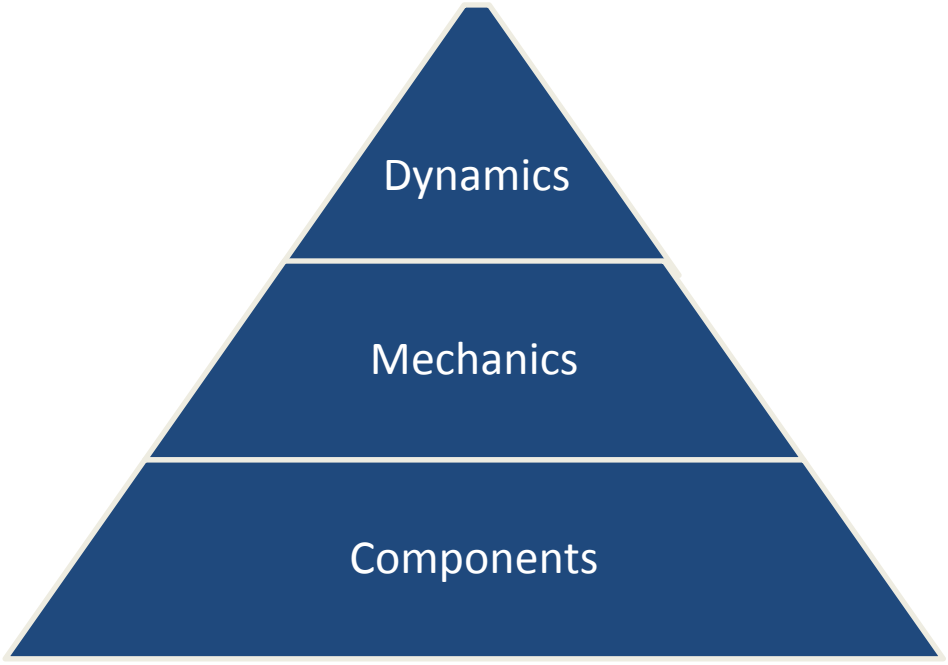

FIGURE 2: Werbach Game Elements Hierarchy

***Game Dynamics*:**

Game dynamics is at the top of the hierarchy, they affect a gamified system at the abstract level. Thus, dynamics are game elements that could not be directly applied to any system. Due to their consequential influences others elements, it is necessary to set the right dynamic at the start of any gamification design process. Effectively, player's interaction with game mechanics would be controlled via modification of game dynamics, as would a user's interaction with a gamified system (Zichermann & Cunningham, 2011).

Alternatively, game dynamics could be regarded as the derivation of present game mechanics (LeBlanc, 2006). Even though LeBlanc (2006)'s viewpoint results in an upward look at the game element hierarchy, they are not necessarily contradict each other as the hierarchy is organized only in order of abstraction.

In total, there are five game dynamics: constraints, emotion, narrative, progression and relationship (Werbach & Hunter, 2012).

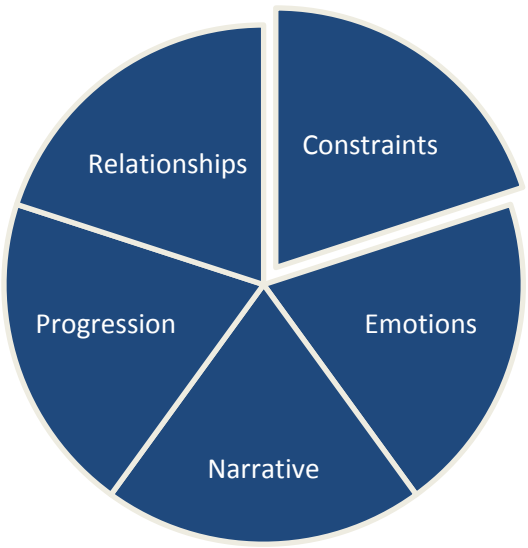

FIGURE 3: Game Dynamics

Constraints represent the limitations, which is integral to a gamified system. Anyone under constraints often has to make difficult choices or trade-offs in order to move forward. Such limitation contributes to the emotion dynamic of a game where frustration or happiness could be a direct result of making the wrong or right decision.

Narrative is the story telling of a game providing background information and context. An on-going narrative could motivate problems solving as it does in certain genre of game (Michele D., 2006). It creates emotional proximity, the state in which users feel somehow connected to or identify themselves with characters within the current system.

Progression refers to the development of a user into an ‘advanced state’. Often the advanced state is one of the goals of a gamification system. Users typically overcome the obstacle within the constraints of the gamified system to reach the advanced state and be able to lessen the constraints or improve their capabilities.

Relationship dynamic controls how users make social interactions within a gamified system. This assists the generation process of positive/negative feelings toward a particular user or to the whole user base.

Game Mechanics:

Game mechanics are regarded as the building blocks of gamification. Unlike other game elements, they are principally visible to users. The paint of an artist could be used as an analogy of game mechanics. Some examples of game mechanics are turns, trading, tasks…

In contrast to other aspects of gamification study, the subject game mechanics have been extensively examined by game design researches. There is an abundance of game mechanics collection on the internet. However, not all of them are applicable to gamification in the business world. Instead, Kumar & Herger (2013) have curated a list of mechanics that are relevant for enterprise gamification.

TABLE 1: Curated list of game mechanics

Journey	Levels	Ownership	Quest
Loss Aversion	Leader board	Badges	Lottery
Rewards	Points	Epic meaning	Free lunch
Collaboration	Reward Schedule	Virality	Challenge

Additionally, the gamification wiki offered its own list of mechanics as part of their series on the gamifying process (Gamify, Inc, n.d.). Both lists are remarkable in length, described the game mechanics in detail and were able to cover almost every known game mechanics at the time of this research. Fortunately, there are about ten most important game mechanics (Werbach & Hunter, 2012).

- Challenge
- Chance (e.g. random or unknown reward)

- Competition
- Cooperation
- Feedback (e.g. points)
- Resource Acquisition
- Rewards
- Transactions
- Turns
- Win state (i.e. winning condition)

Game mechanics facilitate behavioral restructuring by creating a pattern that a user must repeat during the course of a game (Salen & Zimmerman, 2004), or in the context of this paper, inside a gamified system.

Components:

Components are the specific forms of game dynamics and mechanics. They are the muscles and bones of gamification while other types of element take a more subtle architectural role. As suggest by Werbach (2012), there are 15 most important components:

TABLE 2: Game components

Achievements	Avatars	Badges	Boss Fights	Collections
Combat	Unlocking	Gifting	Leader boards	Levels
Points	Quests	Social Graphs	Teams	Virtual Goods

Game elements have an emergent relationship with each other (LeBlanc, 2006). In which, the dynamics determines the overall context in which game mechanics could be implemented and in turn, provide the pattern for integrating game components. Having a list of elements is handy; however, it is not an omnipotent checklist for gamification design. Choosing the right elements is of significant importance in designing a successful gamified system.

2.1.3 Gamification design process:

As mentioned, gamification study was limited because it is a relatively new topic, partly because gamification itself has been lingering between an innovation and a passing trend. Thus, scholastic researches on gamification were difficult to find albeit social media and the World Wide Web in general proved to be a reliable source. Professor Kevin Werbach of Transylvania University was perhaps the most renowned researcher on the subject at the time of this thesis. In his book "*For the win: How gamification can revolutionize your business*", Werbach (2012) provided fundamental key design steps and hereby referred to as the generic process for gamification (see figure 5). This section was dedicated to elaborating Werbach's (2012) proposal for gamification design.

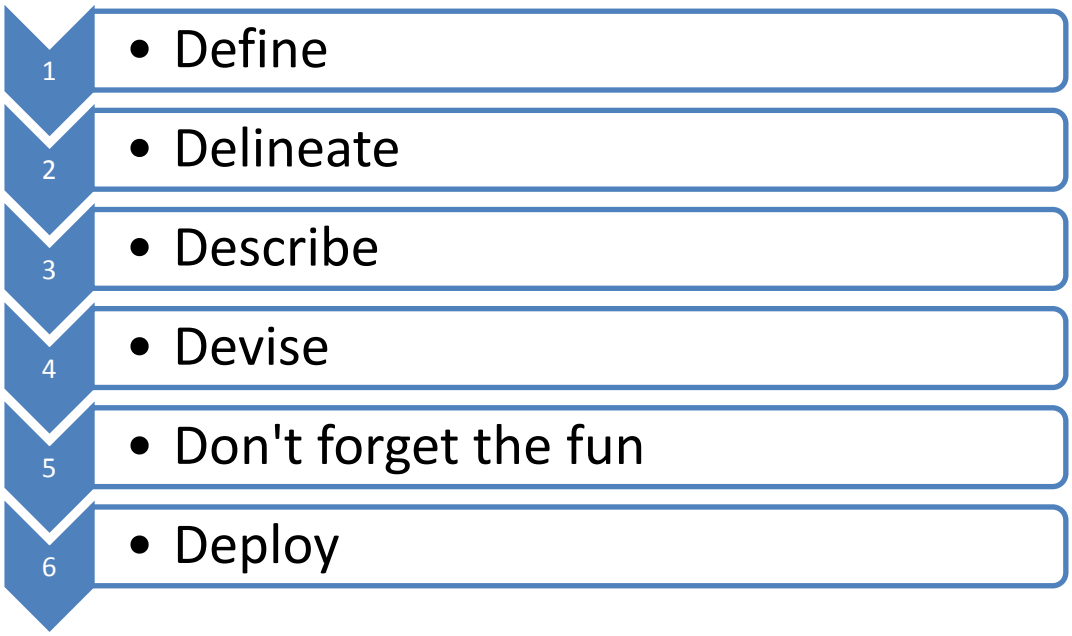

FIGURE 4: Generic Gamification Design Process (adapted from (Werbach & Hunter, 2012))

Define business objectives:

The first step is to clearly define the business objectives of the gamified system. It is not to be confused with the overall corporate mission. Business objectives of a gamified system can be customer retention rate, brand loyalty or productivity in human resource management. This step serves to prevent failure from a lack of focus. As a gamified system could divert customers' attention away from core

business activities, potential customers might even avoid using an inappropriately designed gamified service.

Delineate target behaviour

Secondly, target behaviors must be defined. This step helps narrowing down a list of changes in user's behavior, which is to be achieved by implementing the gamified system in question. Target behaviors should be specific and measurable; a few example behaviors include visit a certain restaurant, share an ad, buy a product, etc… They reinforce the business objectives defined in the first step and provide key performance data (KPIs) for post-implementation analysis.

Describe players

Who is the current user base? What games they play? Do they play game at all? What is important to them? What is their relationship to the business in the gamified context? The answers would disclose key motivators for the current user base; in turn, motivators aid in effectively incentivizing target behaviors. It is easier to predict how a user reacts to a particular game mechanic once their characteristics are defined.

As a side note, de-motivators are not to be ignored. A lack of desire and/or capability is common de-motivators. A system, which addresses these issues, is more efficient than one that does not.

Devise activity cycles

An activity cycle consists of actions within a gamified system that users could take to interact with each other, repeatedly. For example, a Facebook user uploaded a picture, which triggered a notification to a second user, and then the second user made a comment for the photo, which provoked a third one to join the conversation and so on.

Activity cycle exists in both macro and microform. At macro level, it is called *progression stairs, which* give a perspective on how a user advances in the system. At micro level, it is called the *engagement loop* which dictates what

actions a user could take and how the system responses to such actions. An engagement loop pushes users into taking actions and then gives them feedback in order to encourage further actions (see figure 6). However, it does not describe the user's journey, i.e. his/her progress and advancement method. Instead, progression stairs are used for such purpose; they diversify users' experiences to prevent fatigue of the engagement loop.

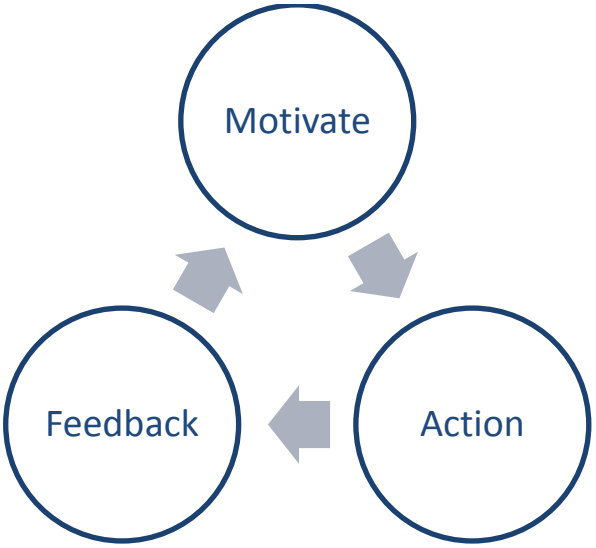

FIGURE 5: Engagement Loop (adapted from Werbach (2012))

Figure 7 demonstrated the relationship between engagement loop and progression stairs. As illustrated, engagement loops could be regarded as components of user's progression through the system.

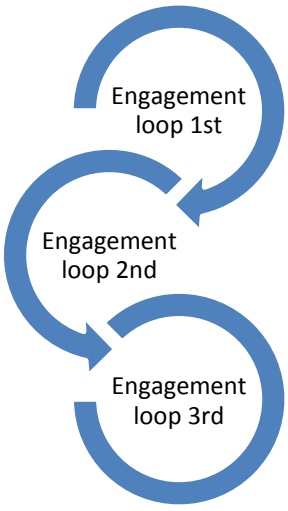

FIGURE 6: Illustration of Progression Stairs

Taking user's motivators and de-motivators into consideration, an activity cycle is sketched to give the gamification designer an overall plan to guide users through the forming process of target behaviors.

Do not forget the fun

In the design process, there are many things to consider, such as business objectives, target behaviors, user's reference, activity loop… Amidst all the important details, the fun aspect is very easy to be forgotten. While gamification could be serious business, it could not work without fun. After all, enjoyment should be the main driving force that makes customers keep coming back to the gamified system, simply because extrinsic rewards would fail to do so in an economical way.

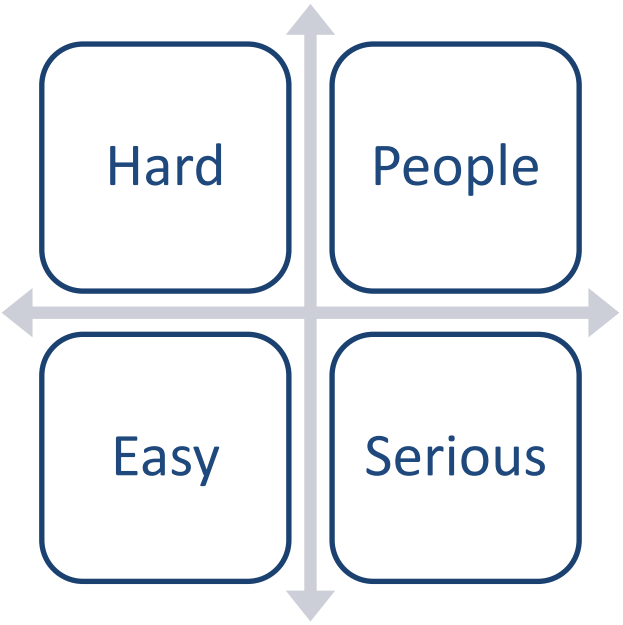

FIGURE 7: Four keys to fun (adapted from (Lazzaro, 2004))

There are four dimensions to fun: easy fun, hard fun, serious fun and people fun (Lazzaro, 2004). "Easy fun" and "hard fun" are determined by levels of difficulty, "easy fun" denotes casual enjoyment whereas the latter represents the enjoyment from completing a challenging task. "Serious fun" arises from purposeful playing; users are excited to see a meaningful change in how they interact with the real world, often as a form of self-improvement. "People fun" is social fun from interactions with friends through cooperation or competition. The suitable type of

fun often depends on user's preferences and has to be tested, refined, and tested again during the design process.

Deploy the appropriate tools

Once the user's base is analyzed, objectives are determined, activity cycle is planned; the appropriate mechanics and components could be put together to create a gamified system.

The gamification design process moves forward by trial and error before the final system is implemented. The design team needs to be diversified in many areas of expertise: strategic business awareness, game designing, user's psychology, data analysis, and technology.

2.2 Conceptual framework

In modern society, social phenomena are emerging at a rapid rate with an even more rapid breakthrough in complexity. Take gamification for example, investigations and researches on the phenomenon often require multifaceted observations from industrial, gaming and psychological perspective. Despite the ample volume of existing literatures on qualitative research methods as the mean to examine social data (Dey, 2003; Lacey & Luff, 2011; Miles & Huberman, 1985; Ritchie & Spencer, 2002), the author of this thesis found it is difficult to acquire a scientific method for formulating a framework for application of social phenomena. This section conveyed relevant knowledges on conceptual framework to explain the scientific structure behind the framework in chapter 5.

2.2.1 Concept and conceptual framework

Concepts are the generalizations of ideas from experiences or from other concepts; the nature of a concept is defined by its components and there is no concept with only one component (Deleuze & Guattari, 1991). For example, when the human mind makes a generalization of the concept BACHELOR, it associates the concept with two components 'MAN' and 'UNMARRIED' (Stanford University, 2011). In the same manner, GAMIFICATION would be associated

with ‘GAME MECHANICS’, ‘NON-GAME CONTEXT’, and ‘BEHAVIOUR CHANGE’. Understandings of a concept’s components shed light on its inner workings and aid its application process.

A conceptual framework is a network of various concepts under a certain theme, essentially made it an effective way to organize ideas and achieve research’s purpose. According to Shield & Rangarajan (2013), there are five identified types of conceptual framework:

- Working hypothesis: for exploratory research
- Descriptive category: to describe a phenomena
- Practical idea types: analysis to break a complex topic to smaller pieces
- Models of operation: aid in decisions making
- Formal hypothesis: to clarify a topic or make certain related predictions

2.2.2 Conceptual framework analysis

In order to capture the value of social phenomena, Jabareen (2009) devised an analysis with which a framework for any phenomanon would be created. The proposed analysis consists of eight phases in total. Each phase represented a single step. Eight phases represented an iterative shift between data and concept, simultaneously mandated the constant comparisons of theorized ideas and factual evidences (see Figure 9); thus ensured the validity of the analysis’s outcome.

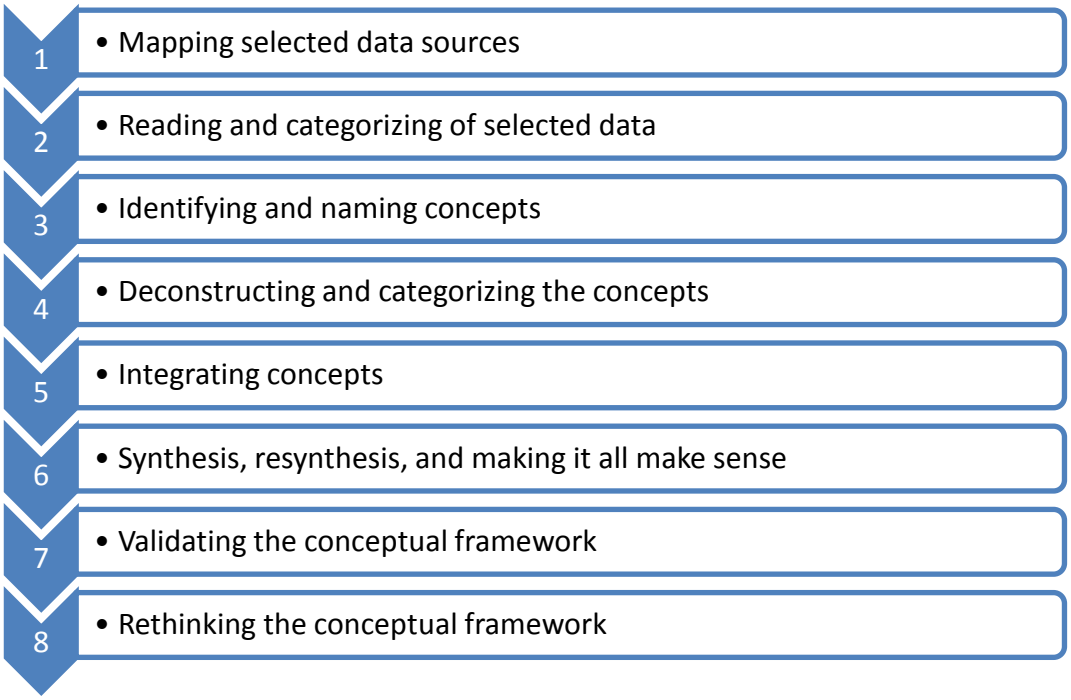

FIGURE 8: Procedure of conceptual framework analysis adapted from (Jabareen, 2009)

Mapping selected data sources

Data sources are selected based on their relevance to the phenomenon in question. The first step is to identify applicable data types such as existing literatures, empirical researches, practices and previous statistics. Additionally, other qualitative methods such as thematic analysis, metaphor analysis, content analysis, etc… might be adopted as long as they are pertinent to the project (Humble, 2009) and allow holistic mapping to establish concrete fundamentals (Peräkylä, 2010). In other words, related articles, books, academic texts, surveys and interviews are collected and mapped accordingly.

Reading and categorizing of selected data

This phase directed towards a more extensive comprehension of selected data. Data are then categorized by their relative importance to and representative power of a certain concept from a collection of its other counterparts, which formed the phenomenon under consideration.

Identifying and naming concepts

Further analyzing of categorized data allows concepts to emerge. The result is a list of concepts that might compete or contradict each other (Jabareen, 2009).

Deconstructing and categorizing the concepts

The aim of this step is to dismantle the internal structure of emerged concepts and strip them down to basic components to gain understanding of their characteristics, mechanics and main attribute. Jabareen (2009) suggested that the result be presented in the following format.

Concept	Description	Category	References

TABLE 3: Identified concepts' categorization

Integrating concepts

This phase reduces the number of concepts down to a reasonable quantity for ease of manipulation. This is done by integrating closely related concepts together into a new one.

Synthesis, re-synthesis, and making it all make sense

This phase involves repeating the synthesis process to discover a conceptual framework that makes sense out of identified concepts. The result is a framework, which explains major research points such as key factors, concepts and variables (Miles & Huberman, 1985). Tolerance, flexibility and openness during the process are necessary attitudes for such framework to emerge (Jabareen, 2009).

Validating the conceptual framework

The final phase is to test the validity of the result framework. It answers the question if the proposed framework is appropriate to other practitioners. An

applicable framework must be able to guide the empirical research and design process according to its context and purpose (Ravitch & Riggan, 2012). Depends on the nature of the framework, it could be tested via field experiment or presented to relevant research community and receives validation in form of feedback.

Rethinking the conceptual framework

Dynamicity is a common trait among social phenomena since there might be new insights, literature and collective knowledge overtime. A framework linked to such phenomenon is also subject to changes over an extended period. Therefore, it is crucial to rethink and update the framework as new information emerges.

3 GAMIFICATION & EDUCATION:

This chapter discusses the relationship between gamification and education. The technical term for application of gamification in education is gamification of learning, which is discussed in sub-chapter 3.1. The focus of this chapter is to provide substantial practices and proof of the effectiveness of gamification of learning. It does so by presented various experiments that were conducted by experts in gamification and education.

3.1 Gamification of learning

Not to be confused with game-based learning where students are required to play commercial video games, gamification of learning involves application of game mechanics to motivate students (Kapp, 2012). Gamification of learning only happens when learning occurs in a non-game environment (e.g. a classroom) where game mechanics are organized and integrated systematically or formed a "game layer", i.e. an actionable layer of context (Jacobs, 2013).

The idea behind gamification of learning is that it motivates students on a cognitive level and form abiding learning habit using psychological engineering (Glover, 2013). Game elements that form learning habit include progress measurability, immediate feedback, challenges, collaboration… The number of elements is irrelevant as stated by Werbach (2012) that gamification must take into account the complex action system of how users act and react and anticipate it. In other words, there is virtually no limit of game elements inside a gamified system; the complexity of user's actions determines the complexity of adopted game elements.

On the note of psychological engineering, more recent literatures on gamification emphasized repeatedly on how extrinsic motivators are outperformed by intrinsic motivators, or worse, undermine the overall performance of the learning system (Deterding et al., 2011) (Hagglund, 2012) (Glover, 2013). In what is now considered a classical experiment, Deci (1975) proved that, in learning environment, intrinsic motivation is more beneficial than its extrinsic counterpart is. Test subjects, who were primarily his students, were divided into two groups:

experimental and control. Both group were asked to solve a series of puzzle over a limited time period with an extra 480 seconds of free time; the difference is that subjects belong to the experimental group were granted 1 USD for each puzzle solved correctly while the control group received none. Test results indicated that the control group, while receiving no extrinsic monetary reward, outperformed the experimental group on number of puzzle solved and time spent working (see Figure 10). Thus, it was concluded that extrinsic reward actually hindered problem solving. Werbach (2012) went further by stating that extrinsic reward might be a de-motivating factor and that "*it is possible to design extrinsic motivators that are introjected, internalized, or integrated and so are more compelling to the user*".

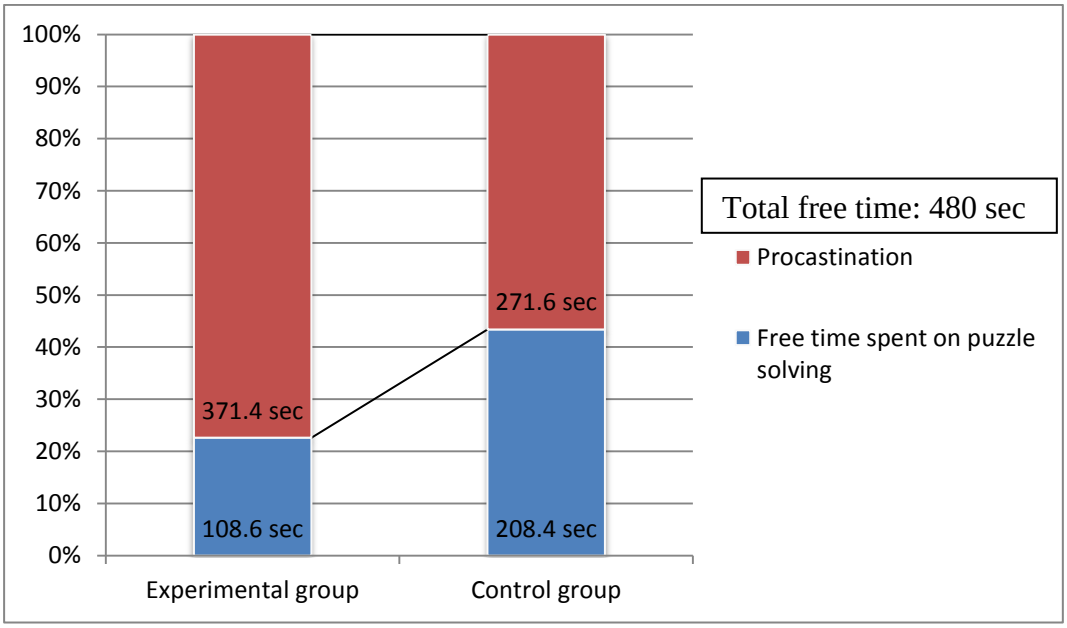

FIGURE 9: Extra time spent on being productive between two groups (adapted from (Deci, 1975))

Incidentally, there are wrong reasons to gamify learning, i.e. gamify a marketing course because it is fun, learning will be effortless and everyone is doing it. While it is true to certain extend (Kapp, 2012), skipping classes is also fun, effortless and everyone is doing it as well. Yet skipping classes does not contribute to learning. Gamification of learning works because it overcomes disengagement (Kapp, 2013); make the learning progress measurable and allows for differentiated instruction (Lee & Hammer, 2011); facilitates identity work through taking alternative roles (Klopfer et al., 2009), etc… A firm grip of reasoning and targeted

objectives is central to the design process for error in such aspects would make gamification of learning more trouble than it is worth.

3.2 Effectiveness of gamification in education

According to Kim & Lee (2013), given enough time, the educational effectiveness of gamification of learning would surpass that of conventional learning.

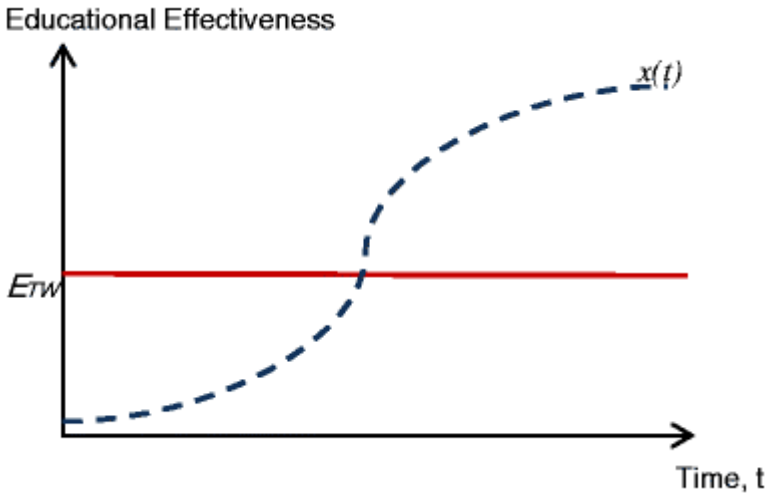

FIGURE 10: Comparison of Educational Effectiveness

Since conventional educational method is limited to course content, textbooks, predetermined instructions, and so forth… effectiveness of such method *(E_{TW})* is depicted as a single horizontal line, which held a constant value due to its relative stability over-time. On the other hand, effectiveness of a gamified educational system is presented by equation *x(t)*, variable *t* denotes time. As illustrated by Figure 11, at certain time *t* the effectiveness of gamification of learning surpasses E_{TW}. The mathematical expression for such conclusion is given by:

$$\frac{d}{dt}x(t) = Gx(t)(1 - \frac{x(t)}{L})$$ (Kim & Lee, 2013)

G is the growth rate of effectiveness of gamification of learning, expressed by $\frac{d}{dt}x(t) \approx Gx(t)$. L is the maximal limit of learning capacity which *x(t)*

converges on, depicted as $\frac{d}{dt}x(t) = 0$ when *x(t)* = *L*. Assumed the equation was correct, several implications could be inferred:

(i) There is a limit of learning capacity (L) derived from both educational approaches
(ii) Growth rate of effectiveness of gamification of learning, expressed by G, is more significant than that of conventional approaches, which assumed to be constant
(iii) As a consequent, x(t) returned a greater value overtime than E_{TW}

In another study, Domínguez et al. (2012) conducted an experiment to see if gamification of learning had an effect on student's score. Two groups of student were selected randomly for a similar course; the control group received conventional education while the experimental group learned within a gamified system. Students who belonged to the experimental group had access to non-gamified materials, those who chose to do so belong to the non-gamified experimental group. The course consisted of five modules: initial activity, word processor, spreadsheet, presentations and databases. One-way analyses of variance (ANOVA) were utilized to test if there is a distinguishable difference between the learning outcome, measured by exam score and participation, between the three groups. The result presented in Figure 12 indicated a substantial increase in final score in the gamified experimental group compared to the other two.

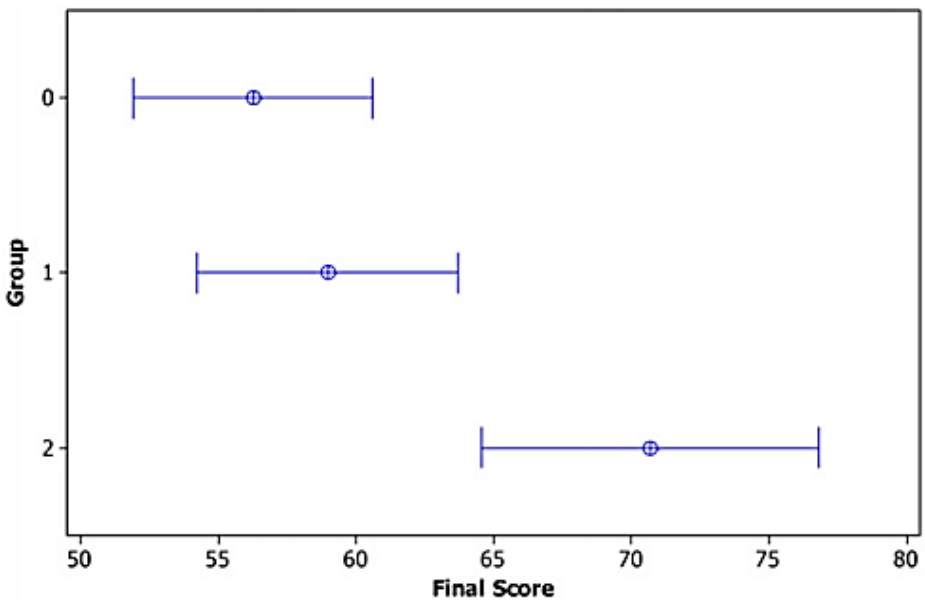

FIGURE 11: Final score (0–Control group, 1–Experimental non-gamified group, 2–Experimental gamified group) (Deci, 1975)

However, the gamified experimental group was outperformed in the final examination (which consisted of theoretical essay questions); this is presented graphically in Figure 13. A student's final score was calculated by evaluating practical exercises throughout the course along with a written theoretical final exam. Domínguez et al. (2012) noted that gamification of learning, while improving the practical competencies, compromised the learning of theory.

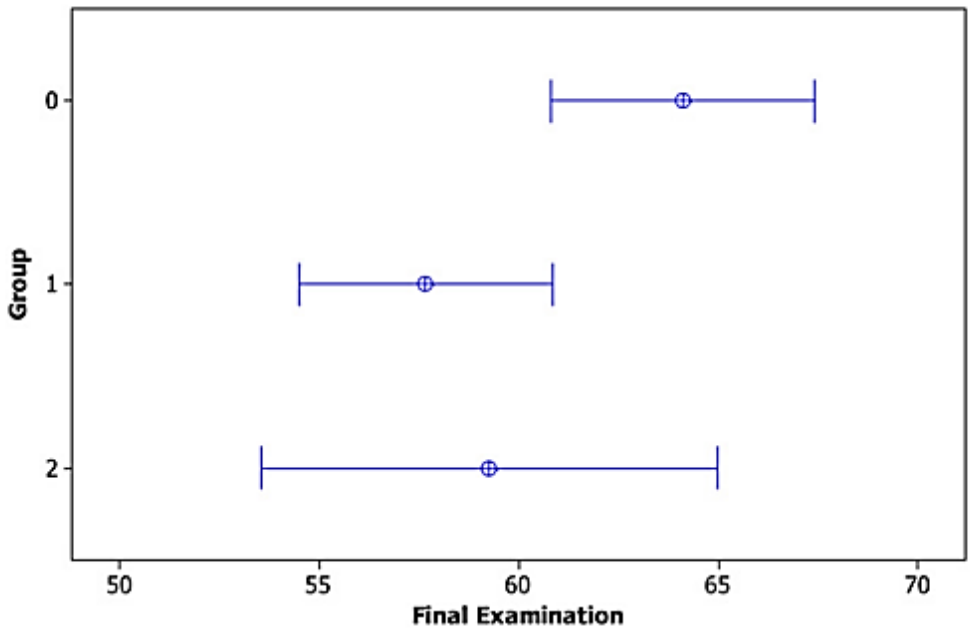

FIGURE 12: Final examination score (0–Control group, 1–Experimental non-gamified group, 2–Experimental gamified group)

Another characteristic of gamification of learning was observed by Therese Charles at University of Ulster, UK upon implementing a gamified learning system and compare the distribution of exam marks before and after implementation (Charles et al., 2011). As seen in Figure 14, the long tail of under-performing marks, which represented under-performing students, was removed by applying gamification. This suggests that the effectiveness of gamification is greater to under-performing students than to students who were already performing well.

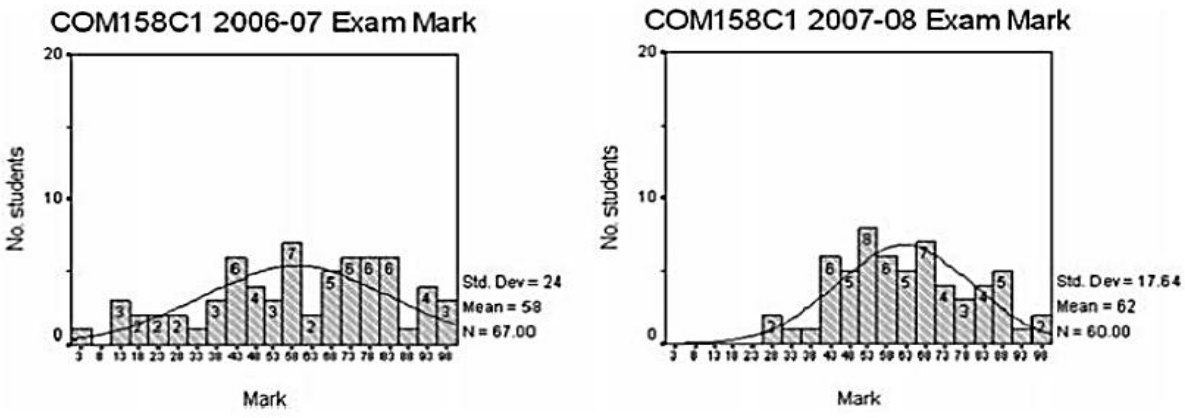

FIGURE 13 Distribution of mark before (left) and after gamification (right) (Charles et al., 2011)

In summary, gamification of learning achieves greater effectiveness over time than the conventional approach (Kim & Lee, 2013), increase student's practical competencies while undermine theoretical understanding (Domínguez et al., 2012), and is of superior effectiveness to under-performing students (Charles et al., 2011).

4 GAMIFICATION FRAMEWORK FOR MARKETING EDUCATION (GFMC):

This chapter presents the findings of the research of this paper. An analysis of current marketing courses in selected University of Applied Sciences in Finland is presented in sub-chapter 4.1 with the aim to find similarities between the courses. The result of this analysis enabled the synthesis of a framework to gamify marketing courses systematically. Such gamification framework is presented in sub-chapter 4.2. Finally, the last sub-chapter provides instructions to utilize the framework in question.

4.1 Marketing curriculum analysis

A list of courses related to marketing in several Finnish University of Applied Sciences was compiled during this study to acquire an understanding on the current marketing content being taught in college level (see Table 4). The list, in no particular order, includes courses from Lahti UAS, Haaga-Helia UAS, Laurea UAS, Metropolia UAS, Tampere UAS, Häme UAS, and Jyväskylä UAS. Courses with similar content were omitted.

TABLE 4: Current Marketing Courses at Lahti UAS, Haaga-Helia UAS, Laurea UAS, Metropolia UAS, Tampere UAS, Häme UAS, and Jyväskylä UAS

Course name	**Year**	**ETC**
Customer Relations and Marketing	1	4
International Marketing	2	5
Market Orientation: Asia	2	5
Market Orientation: Europe	2	5
Market Orientation: Russia	2	5
Digital Marketing Communication and Online Shopping	2-3	10
Marketing in Social Media and Analytics	2-3	5
Researching Target Markets	2	6
Target Market: Economic Regions	2	9
Development and Marketing of Customer-oriented Business	2	10

International Markets and Business Practice	1	5
Marketing: Strategy and Implementation	2	5
Branding	3	5
Marketing Practice	3	5
Digital Marketing	3	5
Marketing research plan	1	5
Services Marketing	2	5
Selected Topics in Customer Behaviour, Branding and Marketing Communications	2	5
Area Studies and Market Development	3	5
Marketing Management	3	5
Experimental Marketing	3	5
Business Concepts: Marketing	1	5
Marketing Communications	1	6
Marketing research and planning	1	6
Customer Relationship Management	3	5
Market Entry Project	3	5
Global Marketing Project	2	5

Table 5 summarized academic content acquired upon extensive examination of all courses' description and syllabus in Table 4.

TABLE 5: Marketing curriculum analysis

Level	Marketing content to cover
Basic	Marketing analysis and value creation
Intermediary	Capture of marketing values
Advanced	Sustainable marketing

Even though each UAS chose their own focus point and designed their unique curriculum in accordance to their institutional value, the marketing courses across various universities can be grouped into three categories under similar themes and

topics: marketing analysis & value creation, capture of marketing values and sustainability issues.

Marketing analysis and value creation related courses included marketing research and planning, marketing research plan, business concepts: marketing, and international markets and business practice… They generally belong to freshman's curriculum, which is taught in the first and second semester. The aim is to introduce new business student to the concept of marketing, which is grounded in marketing analysis such as the 5C's model (Kotler & Keller, 2012).

Capturing of marketing values is another required fundamental in marketing study. Courses, which represent this topic, included marketing strategy and implementation, marketing practice...they emphasize on basic comprehension and application of the marketing mix (4Ps). These courses equip student with professional knowledge to design products/services, plan distribution channels, set profitable price and promotional plan (Kotler & Armstrong, 2010).

Most advanced marketing topics involve the examination of sustainable marketing practices. Courses under this theme are usually taught after students have gained a certain level of knowledge in marketing; for example: customer relationship management, development and marketing of customer-oriented business…They highlight the marketing process of customer retention and acquisition (Kotler & Armstrong, 2010).

Other minor topic includes: competitive intelligent, integration of marketing to other business functions, special issues in service marketing…It was the aim of this analysis to reduce the large number of marketing courses into three categories which is required to formulate the framework in the next section.

4.2 Gamification framework for marketing courses

Figure 15 depicted the GFMC proposed by this paper. The framework was built according to the conceptual framework analysis method created by Jabareen (2009) with influence from Werbach & Hunter (2012)'s gamification design

framework; for a literature review of the method see point 2.1.3 and 2.2.2, respectively.

The proposed GFMC was designed for marketing education professionals who are interested in the gamification of learning. The process begins with stuctural inquiries corncerning the overall context of the gamification project and ends with an interactive learning experimence for student; for information on the effectiveness of such approach see point 3.2.

Other steps of the proposed process includes: classification of marketing content in question, development of activities and assessment in accordance to teaching content, deployment of appropriate tools. Clarifications and other details were presented in section 4.3

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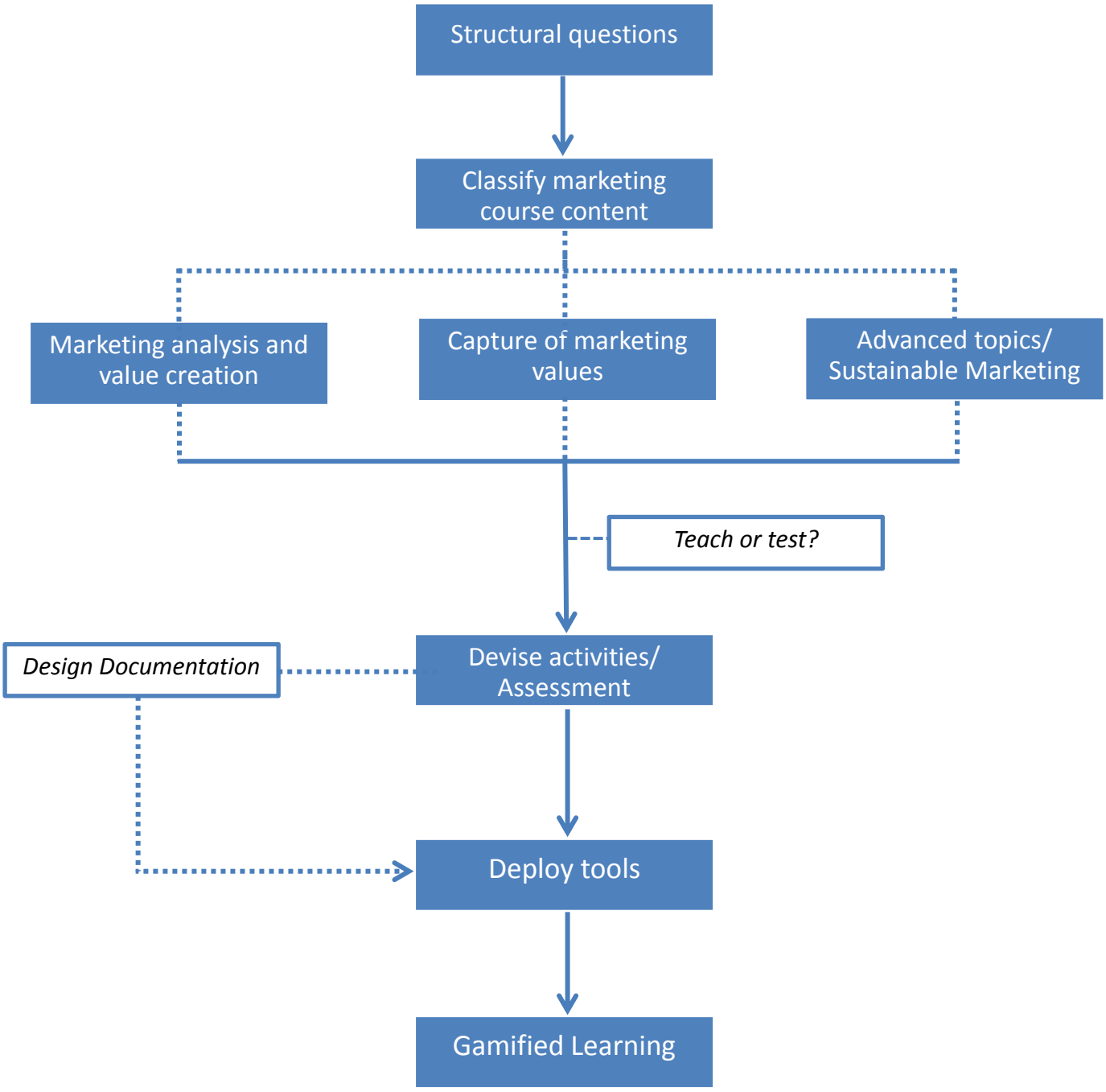
FIGURE 14: Gamification framework for marketing education



4.3 Instructions and clarification:

This sub-chapter discusses additional issues regarding the utilization of the gamification framework for marketing courses presented in the last section. It presents detailed information on each step of the framework and provides clarification when necessary.

4.3.1 Structural questions

There are questions to be addressed at the beginning of any type of educational development project, not just for gamification of learning. Answers to these questions provide deeper and accurate understanding of the problem at hand. To ensure the achievement of desired outcome for the proposed framework, the following questions must be answered:

a) What is the educational need in this case?
b) Is there a more effective, cheaper alternative to gamification?
c) What are the students not doing? What should they be doing?
d) What about the logistics concerned? How long is the implementation period? Where would the lecture take place? What equipment is available?

Typical educational needs are deeper engagement, better understanding, motivation, etc… In some cases, there might be alternatives that are more efficient at achieving the educational need than gamification and the logical choice in such cases would be the alternatives. However, if gamification is the appropriate choice then fundamental deductions on targeted behaviors (question c) and on logistics (question d) are required.

While not directly affecting the result, the assessments made in this phase serve as the background information to keep the whole process on track.

4.3.2 Classification of course content

Marketing contents related to the project are to be generalized into one of the following categories: marketing analysis & value creation, capture of marketing

values and sustainable marketing through customer relation (see section 4.1). Classification of marketing course content help to identify the type of activities to be integrated into a gamified learning experience based on the course's objectives.

Recommended activities based on course classification are based on Bloom's taxonomy of education. According to Anderson & Krathwohl (2001), they ensure learning occur in their respective taxonomy, a full illustration of Bloom's taxonomy could be found at Appendix 1. These activities form activity cycles for the gamified learning experience.

TABLE 6: Recommended activities based on course classification and Bloom's Taxonomy (Anderson & Krathwohl, 2001)

Course classification	Taxonomy	Related activities
Marketing analysis & value creation	Analysis	Compare, analyze, classify, point out, distinguish, survey, differentiate, infer…
Capture of marketing values	Synthesis	Compose, originate, hypothesize, design, develop, plan, construct, organize…
Sustainable marketing/ Other advanced topics	Comprehension and application	Interrelate, illustrate, extend, generalize, sketch, produce, show…

4.3.3 Devise activities and assessment

Once key activities are identified, the next step is to formulate them into an actual game, a simulation or a system to deliver the gamified learning experience. This is perhaps the core and the most difficult task in the whole process, mainly because game and game design knowledge are often outside the area of expertise of marketing education professionals. One way to compensate for such knowledge is to borrow ideas from current games and gamified application.

Teach or test

If the gamification objective is to evaluate student's marketing skills then it is recommended to simulate business situations. This allows for testing students' problem solving skill and practice as they would in the real world. If the objective is to teach then the first step is to break down the topic in question into smaller components and match them with appropriate game mechanics.

However, testing can be a powerful teaching instrument. In this case, adding repetition is the key. In a classical research on memory, Pimsleur (1967) suggested that teacher should time the repetition of key items in accordance to the Pimler's method.

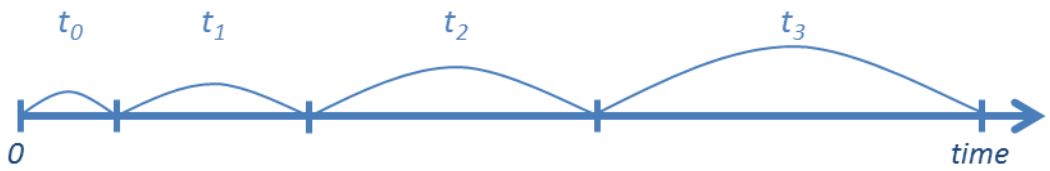


FIGURE 15: Optimal repeat interval for long-term memories forming (adapted from (Pimsleur, 1967))

Assumed t_0 is the time interval for the first repeat of a certain item then subsequent repeat interval is calculated as follow:

$$t_{n=}t_0^{n+1}, n \in N$$

Repetition of key items in such fashion enables forming of long-term or permanent memory of the items in question.

Generation of ideas

Playing games, simulating real life situations and brainstorming are recommended to generate gamification idea (Kapp, 2013).

With the perspective of a designer, playing games is one of the best sources of idea for gamification. Actual playing of game provides insights to how a game attracts a player's attention, how it motivates and direct players to move forward, and the way by which it provides players with information. The type of game

chosen for idea generation is determined basis of in-game activities. Typically, chosen games have the same activities defined in section 4.3.2. A full list of recommended games and their main activities could be found at Appendix 2. Additionally, real life business situations could be a source of ideas. Real life scenarios could be replicated in a classroom environment with suitable game mechanics to create a gamified learning experience. An example of this practice could be found in section 5.

Brainstorming with a multi-disciplined team is another effective way to generate ideas. A multi-disciplined team in this case would include IT personal, marketing expert, graphic designer, instructional designer…

Design document

In many design process across multiple industries, a design document is often produced at the end of planning phases. This document serves as the common groundwork for the design team, or as a medium to communicate the project idea to other stakeholders. The author of this framework recommends the followings to be included in the design document: project overview, target outcome, implementation time, course objectives, description of gameplay, reward mechanic, technical details. An example of such document could be found at section 5.1.

4.3.4 Tools

Large-scale gamification projects often require the collaboration of specialized game design experts. However, for smaller projects with defined learning objectives, there are a few tools to finalize the concept into a game, simulation or gamified application. Table 7 suggested a few tool for this purpose, a full list of suggested tools with hyperlinks could be found at Appendix 3.

TABLE 7: Suggested platforms and templates

Game templates	Knowledge Guru, eLearning Brothers, ActiveDen, C3 Softworks' Bravo…
Gamified platforms	Mozilla's Open Badges, Badgeville, Bunchball, MindTickle…

5 EXPERIMENTAL SIMULATION AT LAHTI UAS:

The author of this thesis tested the GFMC by conducting an experiment in Lahti University of Applied Sciences after the framework had been developed. This chapter reports the experiment in question. First, it explains the experimental design. Then, it reports the result of the experiment and the implications of the result.

5.1 Experimental design

The experiment was designed for two purposes:

(i) To evaluate the effectiveness of gamification in motivating student through a new topic

(ii) To assess the usability of the framework presented by this paper

The experiment was to be conducted at Lahti University of Applied sciences, technology campus. Participants were mostly Finnish IT students with little to no prior marketing knowledge. Thus, it was safe to conclude that marketing is a relatively new topic for them. The design document (see table 8) provided overall descriptions of the experiment.

TABLE 8: Design document for experimental simulation at Lahti UAS

Elements	Description
Project overview	Experimental gamified learning experiment that introduces non-business students to the topic of marketing.
Course objective	The aim is to provide a preview to actual business decisions making from a marketer's perspective at preliminary level.
Target outcome	A heightened level of interest in marketing study
Implementation time	April 23, 2015 14:00-17:15

Description of gameplay	Students alternatively take the role of either marketing executives or customer. As customer, students' ability to make rational evaluation on a certain company's marketing strategy is examined. As executives, students were expected to make the right marketing decision(s) based on a pre-determined list of available strategies. Points for customer students are awarded by a supervisor; points for executive students are awarded by customer students.
Reward mechanic	A leader board is established periodically to track students' progress. Students are allowed to use various bonuses if they ranked too low in order to maintain a satisfactory level of interest during the session. At the end of the simulation, the student with the highest score is rewarded with a physical gift.
Technical details	The simulation is text-based. The following materials were to be prepared before the session: • Role cards • Score cards (see table 9 & 10) • Pre-determined list of marketing strategies for each simulation topic (see Table 12 & 13) • Answer sheet for strategy ratings (see Table 14)

TABLE 9: Customer role's scorecard

As Customer	
Topic	
Strategies rating (from -1 to 3)	
-1	
+0	
+1	
+2	
+3	
Point(s) given:	

TABLE 10: Executive role's scorecard

As Executive	
Topic	
Chosen strategies	
A	F
B	G
C	H
D	I
E	J
Marketing costs	
Points received	
Score[1]	

Simulation details

The simulation was designed with two topics: marketing in banking sector and in oil sector. One round of the simulation was conducted for each topic; there were

two rounds in total. Each round consist of two phases: planning phase and negotiation phase.

At the start of the simulation, students are divided into pairs consisting of both roles (executive and customer) by randomly drawing from a pool of role cards. Once all students have drawn their role card, the supervisor explained general rules and time limit. Roles' activities and scoring mechanism is presented to the students as depicted in table 11.

TABLE 11: Simulation instructions

Role	Instruction	Scoring mechanism
Executive	• Choose from one to ten strategies from the provided marketing list to be implemented to his/her company's current strategy. • Chosen strategies are to be marked by *pen* to the student's score sheet on the executive side.	Each chosen strategy cost the executive student one (1) point as marketing cost. Points for each strategy are awarded in accordance to the rating determined by the paring customer student. The final score is calculated by deducting total marketing cost from the total score.
Customer	• Rate all strategies in the provided marketing list from -1 (minus one) to +3. • Ratings are to be written down by *pencil* on the student's score sheet on the customer side.	Points are given based on the accuracy of the ratings given.

In the planning phase, students were to work with the provided strategy list and to follow instructions with respect to their role. New information, keys concepts, and learning target were presented to student in the form of the strategy list. The list was constructed on previous marketing researches in order to ensure its validity and encouraged students to ask for clarification on provided items (see Table 12 & 13).

TABLE 12: Strategy list for Banking sector (first round)

A	Adopt Google Ad words to boost internet traffic
B	Branch optimization: Not branchless, but certainly less branches
C	Branch extension: More branches to increase strategic coverage
D	Hire BIT students to make a banking app for Apple Watch
E	Invest in logo design: Because a better logo is better
F	Offer special low-fee accounts/services because of depression
G	Print origami instructions on the back of bank receipts
H	Real time payment: Money transfers now happen instantly
I	Promote heavily your banking apps, website, internet banking, etc…
J	Bonus ATM: randomly give 50eur bills instead of 20eur bills

TABLE 13: Strategy list for Oil sector (second round)

A	Product differentiation: Oil
B	Substantially increase total advertising budget
C	I-beat-your-price: lower price than competitor as often as possible
D	Invest in retail outlets, e.g. ABC stores, gas stations…
E	Accept product swap agreement
F	Send frequent product/service reviews to potential customers
G	Advertise in industry magazines
H	Attend and/or organize marketing events, e.g. duuniexpo, etc...
I	Lobby against renewable energies because you can
J	Maintain & promote good delivery performance

In the negotiation phase, when score for the round were to be determined, students acting as executive are to persuade his/her partner to change the rating in favor of the executive. This examined students' skill in negotiation, clarification, and explanation. The point was to stimulate discussion between students, which, in turn, resulted in self-learning.

At the end of the first round, the following bonuses were given to the bottom three in ranking:

- A possibility to change partner
- An energy drink
- A possibility to deduct 1 points from other student's current score
- A more detailed strategy list for the next round with penalty in time for the planning phase (-50% thinking time)

Students were put into an imaginary situation with four possible courses of action, each action led to a different bonus (see Appendix 4). This improved the fun

element of the simulation. The point was to surprise the student with the bonus as the result of their action and then gave them the difficult choice of using the bonus or not. This reinforced the main theme of the simulation: meaningful choices and their consequences, which induced engagement.

A note on customer role scoring mechanism

Because mid-simulation bonuses were to be awarded based on performance, or lack thereof, it was crucial to keep a balance between customer score and executive score. The original design was to award points on the accuracy of rating given to the strategies (see Table 14); each correct rating was equal to one point for the customer student. However, the difference of scoring mechanism between customer role and executive role could result in an imbalance in rankings as a customer student could only gain a maximum of ten points while an executive student could gain twenty points. Therefore it is advisable to adjust customer scoring's mechanism on the spot should such imbalance occur. This could be done either by increase the number of points given for each correct rating or by additionally giving point for ratings, which were close to the correct answer.

TABLE 14: Answer sheet for strategy rating

Ratings / Topic	-1	0	+1	+2	+3
Oil sector	D	C	A, G, I	B, E, J	F, H
Banking sector	A	B, D	E, F	C,H	I, J

The answer sheet was devised from previous marketing researches in the oil and banking industry (Alfadly, 2011) (Gelb Consulting Group, 2012) (Rhee & Mehra, 2006) (Marous, 2013) and the author's personal judgment.

5.2 Simulation results:

The following tables represent students' score result from two rounds of simulation. Pseudo names were used instead of students' actual name.

TABLE 15: First round results

No.	Ranking	Name	Score	Score (modified)
1	1	Pete	7	6
2	2	Susan	6	5
3	2	Maria	6	5
4	4	Johnson	5	4
5	4	Kata	5	4
6	4	Hertz	5	4
7	7	Peter	4	3
8	7	Rokio	4	3
9	7	Tom	4	3
10	10	Wang	3	2
11	10	Reina	3	2
12	10	Karhu	3	2
13	13	Jesh	2	1
14	13	Smith	2	1
15	15	Miina	1	1
16	15	Kyle	1	0
17	16	Robert	0	-1
18	17	Bob	-1	-2

A student named Jonas who ranked 15th after the first round was eligible for the bonus. The bonus enabled him to deduct one point from every participant except himself. Therefore, the final score for the first round was modified as shown on Table 15. There were sights of friendly-hostility toward him after his decision.

TABLE 16: Second round results and total rankings

No.	Ranking	Name	Score	Total score
1	1	Pete	5	11
2	1	Susan	6	11
3	1	Tom	8	11
4	4	Maria	5	10
5	4	Kata	6	10
6	6	Johnson	5	9
7	6	Peter	6	9
8	8	Hertz	4	8
9	9	Wang	4	6

10	9	Karhu	4	6
11	11	Reina	3	5
12	11	Jesh	4	5
13	13	Kyle	4	4
14	14	Smith	2	3
15	15	Bob	4	2
16	16	Rokio	-4	-1
17	17	Miina	-4	-3
18	18	Robert	-4	-5

At the end of the simulation, there were three students with the same total score (Pete, Susan, Tom). Another random lottery was made to determine the winner. In the end, the prize was awarded to Susan due to lottery's result.

5.3 Interpretations

Due to short implementation time and the experimental nature of this simulation, an actual assessment of students' level of interest was not devised. However, according to field observations, participating students showed a heightened level of interest and excitement.

Students who scored four or better were, generally, able to maintain their performance and level of interest throughout the simulation. On the other hand, the low ranked students did not make significant progress in the second round with the exception of Bob, who received the penalty of -50% planning time, and Kyle, who previously decided to reduce everyone's score but his. This implied the effectiveness and importance of bonuses given and suggested further improvement on bonus design.

Due to the original design, particularly the design of strategy lists, students were expected to ask the supervisor teacher for clarification on confusingly constructed terminologies presented. However, during the course of simulation, the supervisor did not receive as many questions as expected. This behavior could be explained by students' tendency to use online search engines with their electronic devices. For future improvement, a certain mechanism should be devised in order to encourage question-asking.

Further improvements for the simulation include:

- More balanced scoring mechanism
- Additional bonuses with greater impact on the simulation
- Encourage student to ask questions during the simulation
- Interest level assessment

6 FURTHER RESEARCH:

The synthesis of the GFMC essentially satisfied and concluded all research objectives for this paper. Nevertheless, the author fully acknowledged various flaws in design, which call for further improvement.

First, the analysis of marketing curriculum was primitive at best due to the author's limited access to learning and development (L&D) materials. The original GFMC presented by this paper only has three classifications of marketing courses, which do not necessarily cover all areas of marketing expertise being taught. Thus, it is advisable for L&D professionals to extensively analyze current marketing content that would be exposed to students at university level and then reintegrate the result to the GFMC.

Secondly, the simulation, which was designed to validate the GFMC, could be improved in order to be incorporated into an actual marketing course. Suggestions for such improvement were presented in section 5.3.

Finally, the GFMC could be modified or redesigned for education of other business functions such as finance, corporate strategy, human resource, logistics, etc…

7 SUMMARY:

The major research objective was to formulate a gamification framework specifically for marketing courses. Accordingly, to provide reliable results with practical value, the research was split into three main parts: theoretical part, framework design and testing of framework.

In the theoretical part, prominent literatures and other academic works were reviewed; their focuses were gamification basics, conceptual framework design, and marketing education. These theories provided fundamental knowledge on application of various types of game elements, critical components of conceptual framework design and the scientific method of combining them together.

The framework design was strictly based on the conceptual framework analysis proposed by Jabareen (2009). Main components of the framework included marketing curriculum analysis, generic gamification framework based on the work of Werbach & Hunter (2012) and Bloom's taxonomy of learning (Anderson & Krathwohl, 2001). This approach ensured the credibility of the resulting framework presented by this paper.

Testing of the GFMC was conducted at Lahti University of Applied Sciences. A simulation of the relationship between marketing executives and customers was designed for the test based on the GFMC. Eighteen students participated in the simulation. The experiment result and interpretations implied a rise in students' interest towards business decision-making and marketing. However, an actual survey of student interest was not included due to constraints of the implementation time. This suggested further research on the issue.

Ultimately, L&D progress will lead to a variety of novel educational approaches. Gamification is one of the relatively new approaches that have been proven to produce positive result. The research in this paper was intended to contribute to the gamification of learning movement as well as raise awareness of the subject.

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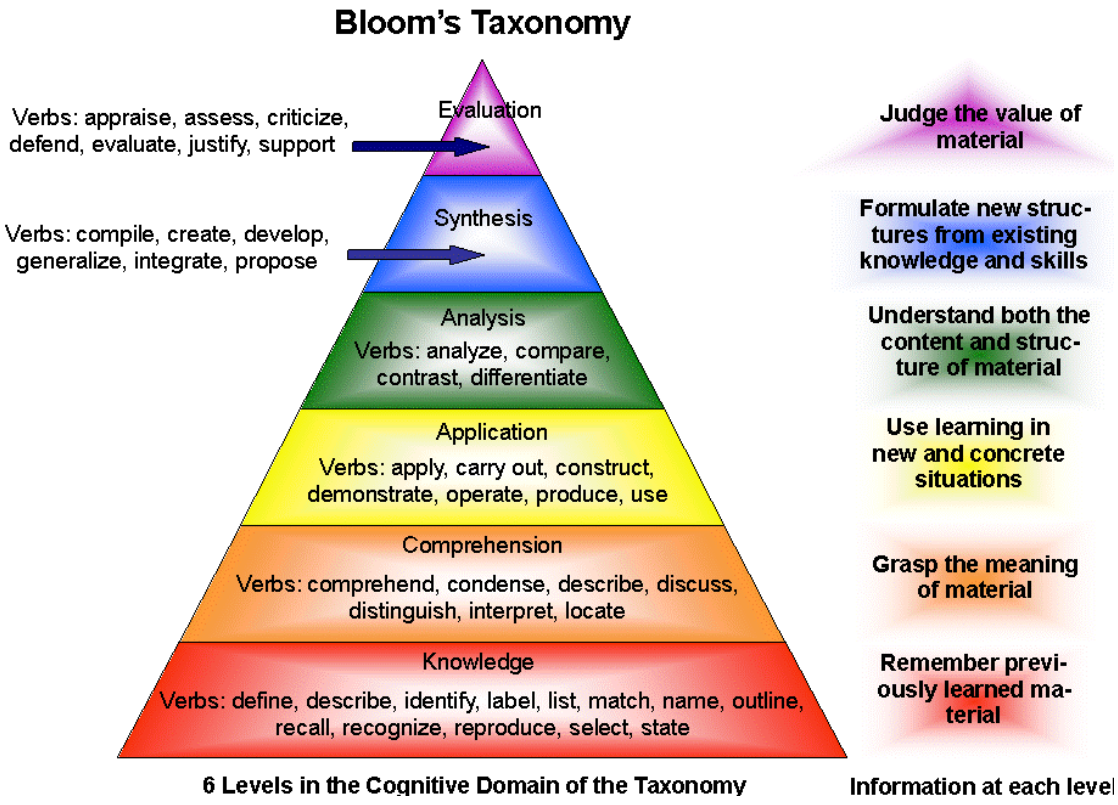
APPENDICES

Appendix 1: Bloom's taxonomy of education – Cognitive Domain



Appendix 2: Recommended games

Main activity	**Recommended games**
Collect and capture	Company of heroes 1&2
Allocate resource	Civilization V, Godus, Izle
Strategize	Plants vs. Zombies, StarCraft series,
Build	SimCity series, Anno: Create a new world, Minecraft
Puzzle solving	Drawn series, The Dream Chronicles
Explore	Dear Esther, Amnesia, Proteus
Role-play	Fallout series, Elder's Scroll series, Final Fantasy VIII

Appendix 3: Templates and platforms

Platform/template	Links
Game design templates	
PowerPoint Templates	www.powerpointgames.wikispaces.com
C3 Soft works' Bravo	www.c3softworks.com
eLearning Brothers	www.elearningbrothers.com
Knowledge Guru	www.theknowledgeguru.com
Raptivity	www.raptivity.com
Gamification platform	
Mozilla Open Badges	https://openbadges.org/
Axonify	https://axonify.com/
Badgeville	https://badgeville.com/
BigDoor	https://bigdoor.com/
GamEffective	https://gameffective.com/
MindTickle	http://mindtickle.com/
OnPoint Digital	http://onpointdigital.com/

Appendix 4: Bonus choices for the bottom three in ranking

Advantages

Midway through a game, a GM offer you some advantage because he is brilliant and you sucked last time. What is your response?

A. Weapon of mass destruction, please

B. Boost my intelligent

C. Something tricky

D. I don't know, cheating is for pussy

Advantages

Midway through a game, a GM offer you some advantage because he is brilliant and you sucked last time. What is your response?

A. Weapon of mass destruction, please. - Minus 1 point from everyone except you.

B. Boost my intelligent - You now think x2 faster than other student, -50% phase 1 time

C. Something tricky - You can now swap partner (with the same role)

D. I don't know, cheating is for pussy - He replied, how about an energy drink?