Gamification and E-Learning in global adult education Case master's degree program business management and entrepreneurship

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Abstract

The aim of this paper is to explore the impact of gamification on learning international business management. The theoretical framework consists of e-learning theories and principles, as well as theories and concepts of gamification. The data for this paper derives from the Master's degree students' experiences of playing a global business game online. The students had at least three years of work experience prior to their studies. The students were located in Finland, Sweden, Norway and Russia, and the supervisor in Finland. The game was conducted 100% online. The students were excited of the new way of learning. Additionally, the business game helped the students to analyze and solve business problems at work.

1. E-Learning in Adult Education

Learning by playing is an old approach to teaching especially children. Because game playing technology has advanced significantly during the past few years, more modern versions of playing have found their way to adult education as well. Gamification is a new approach to the phenomenon. The effects of gamification on learning have been discussed from various perspectives. The aim of this paper is to examine the concept of gamification in the adult e-learning education context, and how gamification was used in teaching and learning global business management. This paper will also include the reactions and comments of the learners. The case introduced here was organized in Finland. The learners and the teacher were dispersed in Finland, Sweden, Norway, and Russia.

Adult learners in higher education are a demanding target group because they usually have a Bachelor's degree and significant work experience before entering Master's level education. Due to the Finnish education system, Master's students at Universities of Applied Sciences have at least three years of work experience to be eligible to apply for a Master's program. This sets high standards for education planning and conduct. The key question is how to motivate experienced learners to play a business game. According to Terry & al. (2015), the learning environment needs to be accepted by the adult learners. This means that the learning objectives are fit for the learners, teaching and learning methods are challenging, materials interactive, and comprehensive feedback is given.

According to Terry & al. (2015), e-learning effectiveness can be evaluated by the following criteria: technologies, behavior, and organizational and social factors. Technologies include platforms and design of curriculum content. The curriculum should allow effective use of systems. The systems may not be too complicated but they should contain rich media. Special

attention should be paid to the quality of the system itself, system service quality, and the curriculum content quality.

Quite as important as the infrastructure of the e-learning platform, is the behavior and traits of the e-learners. Adult learners' study strategies are diverse due to their former education and work experience. Also their previous experiences of e-learning have an impact on adopting a full online co-operation and contents. Computer self-efficacy naturally enhances or hinders learning. The students should reach a flow experience to gain the most of the e-learning experience. Computer anxiety of learners and negative or reserved attitude towards e-learning may hinder the process. (Terry & al., 2015)

The third aspect which should be taken into consideration in planning and conducting e-courses are the organizational and social factors. Edmundson (2009) states that failing to recognize the impact of culture can endanger the success of the globalization effort. Planning and conducting e-learning courses stems from the organizational culture of the educational institution. Learning and knowledge sharing need to be deeply rooted in the culture of the educational organization. A supporting environment has a great effect on the motivation and attitudes of the teachers. Creation of an e-learning environment and contents require pre-interactions, collectivism and team force to be successful.

The organizational culture is not the only influencing factor on e-learning. The diversity of the learners' and teachers' cultural and educational background is quite as important. Learning strategies and skills vary a lot, and access to web-based instruction can be totally or partly blocked due to political reasons or interruptions in communication connections, for example. According to Stewart (2002), a blended e-learning approach, i.e. mix of self-paced and instructor-led sessions, is suitable for adult learners because they often appreciate some kind of involvement of an instructor or trainer. Focus on learning objectives, and instructional design principles appropriate for adult learners, is essential. In general, adult learners also want to be challenged and appreciate interactive materials. Magni & al. (2013) argue that cognitive absorption describes the state of engagement among adult learners. They found out that high-intensive training sessions have both a positive and negative impact on learning. Cognitive absorption has a positive impact on learning up to a point but if continued, it leads to individual detachment and loss of interest. To avoid these pitfalls, the learners should balance their involvement, and choose suitable learning methods for each session.

One of the cultural challenges in e-learning and e-teaching is finding a common language. Poorly spoken English tends to be the most common language in the world but it can cause serious problems in understanding. Also interaction in web-based environment can be subject to cultural misunderstandings. Both verbal and non-verbal communication is important. Edmundson (2009) points out that localization of English language, i.e. user interfaces such as icons, symbols, gestures; taboos etc. take a different meaning depending on the background of the non-native English speaker. Therefore a course designer should pay attention to the learners' environment and culture, their unique characteristics, and apply the results of latest research on learning and culture. To enhance learning, the course designer should consider using translations, localization (modify the course to meet the needs of learners), modularization (students can proceed step by step), for example. According to Cheng (2013) sometimes e-learning materials made overseas conflict with local laws and regulations.

Both the online education providers and the users need to consider the value of training online. Establishing and running a faultlessly functioning e-learning program requires substantial planning and funding. Detailed analysis of the cost and return on investment (ROI) of e-learning is needed (Deeny, 2003). Costs are easy to calculate but analyzing the results and

the overall influence on the client organization's operations is a much more demanding task. The ADDIE model is used to analyze the results and influence of the business game in this paper.

2. Gamification in Adult Education

Games have been part of human life for generations. Kim (2015) points out in his article "Keeping up with … Gamification" that the evolution of information technology has brought games at the reach of people all over the world thus increasing global co-operation and communication. Smart phones and large social networks have changed the meaning of game from entertainment to a portable activity interwoven with reality. Gamification is the "process of applying game-thinking and game dynamics, which make a game fun, to the non-game context in order to engage people and solve problems". According to Kim, gamification can increase the motivation of students in higher education, and intensify higher education activities. (http://www.ala.org/acrl/publications/keeping_up_with/gamification, retrieved on 14 June 2015)

The concept of gamification is still evolving. It is usually defined "as the use of gameplay mechanics for non-game applications" (Grove, 2011). For the purposes of this paper, gamification is narrowed down to comprise communication and information sharing, in-house idea generation and reward system in an organization, thus excluding e.g. marketing. Zichermann and Cunningham (2011) argue that passion drives extreme performance improvement, i.e. enthusiasm and mutual competition are the main drivers in the game. As an example they suggest World of Warcraft, a Massively Multiplayer Online Role-Playing Game (MMORPG). According to Liyakasa (2012, 30) gamification could be characterised as behaviour management. In the business context this could mean e.g. innovating new business processes, developing and executing new ideas, or just make intimidating processes fun.

Zichermann & Cunningham (2011) point out that to be successful, the game should provide some value to the participants, offer different forms to play, offer a prize for participation, and early access to contents, to mention a few. Gamification mechanisms are based on things people like: pattern recognition; collecting; surprise and unexpected delight; organizing and creating order; gifting; recognition achievement; leading others, to mention a few. Zichermann (2011) notes further that gamification can be used for reaching business purposes. This kind of usage motivates adult learners as well.

Gamification consists mainly of four mechanisms: points, badges, levels, and challenges. In general, the players collect points of success and failure. Thus points also rank the players which may motivate for a better performance. Badges, i.e. virtual rewards, can be used to recognize, motivate, and reward the employees for good performance. Levels are used to motivate the players or a team to reach a higher level. Group pressure forces the members to do their best otherwise exclusion from the group could be inevitable. The fourth mechanism of gamification is challenges which often are comprehensive tasks. (Zichermann & Linder, 2011, Gamification of an Enterprise, 2012, Whitton, 2011, 602.

Tulloch (2014) argues that games train the players mainly to perform tasks and collect points or items, and lack the pedagogic aspect. In higher education in international business this is not the case, as the case in this paper indicates. Students' learning strategies and varying educational and cultural backgrounds are taken into consideration in planning and conducting the courses. The learning experience culminates at the workplace, and better performance there is probably the highest reward.

 The main point is that the right game is introduced to a right target group. Adult learners can use their education and especially work experience to come up with new solutions. Game environment allows them to test more risky strategies and analyse competitors´ responses. Adults tend to be quite as excited of good performance as the younger players. Additionally, their decisions are based on more careful calculations because they can draw on their real life expertise. The biggest challenge for the teacher is to choose pedagogically suitable methods to engage the adults to play the game seriously enough.

It is often assumed that computer games motivate most learners. It may be the case with younger students but adults are more demanding, particularly in higher education. Engaging adults calls for suitable and well-designed games, and effective learning environments. Moreover, engaging interactions can facilitate learning. (Whitton, 2011, 597) At its best, both the learners and the teachers get engaged so deeply that they experience a flow (Benyon & al., 2005). Csikszentmihalyi (1992) describes flow as "the state in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost for the sheer sake of doing it."

Adult learners in Higher Education are not motivated to learn by the computer games as such. Adult learners expect the games to be well-designed, curiosity awakening, and challenging, and thus appropriate for reaching a deeper understanding of the topics in the curriculum. Additionally, the learners should be able to solve real business problems based on their studies, and to anticipate the results of the actions they take. (Whitton, 2011, 596-597, 604-606, Malone and Leppert, 1987). A malfunctioning game and/or poor tutoring will probably have a controversial impact.

Whitton (2011, 602-603) identified four factors which had a negative impact on learning. If learning the rules of the game took too much time, the learners experienced difficulties in getting started. Insufficient support when they got stuck in the game could lead to distrust in the game itself. In some cases the students were not interested in the topic itself which of course was not the fault of the game. In sum, the adult learners didn't play the game because of the game itself. The game had to be embedded in the overall learning setting, and enhance the learning process. This is essential to take into account in adult education because the learners may deal with the same problems at work.

In the following section of this paper a successful implementation of a business game in adult education will be introduced. The participants were Master's degree students, and the supervisor the other author of this paper, senior lecturer MSc. (Econ. & Bus. Adm). Riitta Blue.

3. Case: Master's Degree Program of Business Management and Entrepreneurship

The following case was originally designed and conducted as a business management course in spring 2012 at the Satakunta University of Applied Sciences in Rauma, Finland, as part of the advanced professional studies in the Master's Degree Program of Business Management and Entrepreneurship (BME). This is an ongoing project which has been carried out twice since 2012. This case will introduce and describe the process of designing and implementing an e-learning solution using the ADDIE model (Analysis, Development, Design, Implementation, and Evaluation):

a) Analysis

This business management course was targeted at a multicultural group of adult students, representing eight different countries and nationalities. At the time, students were fully employed in working-life having at least three years of work experience. Their professional backgrounds were diverse: business owners and entrepreneurs; international managers; non-managerial positions; business consultants. Students were located in Finland, Sweden and

Norway. Case BME was a co-operational learning project, including another student team from International Graduate School of Management, St. Petersburg State Polytechnic Russia.

Curriculum requirements were highly professional, containing strategic management of a global enterprise; risk management; financial planning and control in a highly competitive business environment. Learning objectives included improving students' understanding of global business operations and enhanced competence in making strategic decisions. Moreover, students were to gain practical experience of developing their team skills.

b) Design and Development

After a systematic exploration of instructional problems and objectives, learning environment and learners' existing knowledge, it was obvious that the best learning solution was a business simulation game. This was Cesim Global Challenge, a completely web-based solution, and ideal for learning strategy and international business. It provided an interactive, high-quality content that matched with the course requirements and supported the learning process tapping on students' experience, observations and reflections (Figure 1).
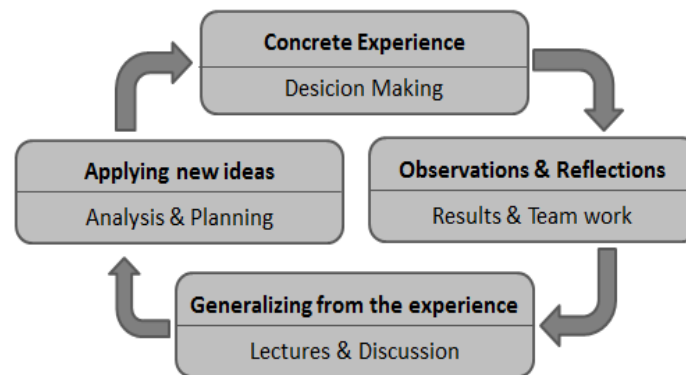
Figure 1: Learning Process (Cesim Global Challenge).

Cesim Global Challenge did not need any additional applications; it could be accessed from any computer with an Internet connection. Another great benefit was that their technical support was efficient.

c) Implementation

In Cesim Global Challenge, the task for the students was to manage a global mobile telecommunications company through a technological evolution in a highly competed, fast-paced business environment. As a team, they were in charge of the company's business strategy, research & development, production, marketing, logistics and finance. The main objective and winning criteria for the teams was to deliver sustainable, profitable growth for their company.
Students worked in virtual teams practicing their decision making skills. Yet, each student had their own account which enabled them to work individually if they liked, and later combine their outcomes with the team decision. For team communication, students were encouraged to use the communication forum on the simulation platform, yet they were free to use any other methods as well, such as Skype, social media, chat, email or phone.

The game was eight weeks in duration. It was round based, each round being regarded as one fiscal year. Students were to submit their team decisions each week by the given deadline. Decision making followed the cycle as described below (Figure 2):
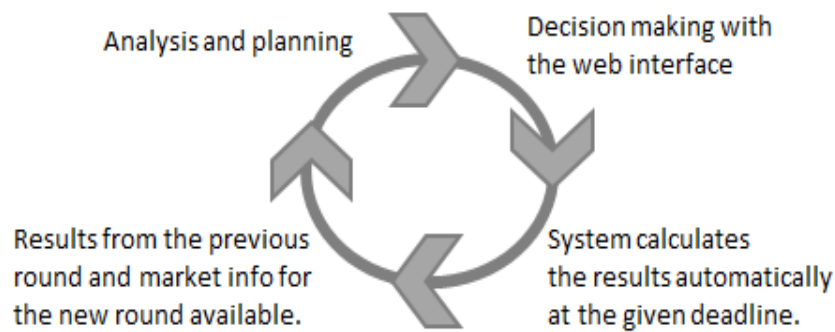
Figure 2: Decision making cycle (Cesim Global Challenge).

Due to the diverse cultural, professional and educational background of the students, additional interactive study material was posted on Moodle for independent study. There were also instructor-led sessions and discussions using Adobe Connect for web conferencing.

d) Evaluation

Evaluation was based on measurable effects on learning, overall skill acquisition and knowledge transfer, as well as measuring how well the performance achieved the learning objectives. The winning criteria was to deliver sustainable, profitable growth for the company. This was measured by a ratio called "cumulative total return to the shareholders" which combined share price development and the dividends paid to the shareholders. Also some other financial key indicators were used for measuring performance. Each team received a written feedback on their performance and strategic decisions.

4) Discussion of the case implementation

The purpose of this study was to develop a practical e-learning solution for teaching strategic management. Since implementation is an essential part of the strategic planning process, it was important that this feature was included in the learning solution for the students to be able to apply their strategic decisions. Cesim Global Challenge, a business simulation game was selected for the course implementation.

Technologies include platforms and design of the curriculum content. The effectiveness of the e-learning solution can be evaluated using the following criteria: technologies, behavior, as well as organizational and social factors (Terry & al. 2015).

The main learning management system at the Satakunta University of Applied Sciences was Moodle. Students had been using it before, they were familiar with it. Yet, in case there were any questions, they could contact the university help desk for technical support. Cesim Global Challenge as a web-based solution turned out to be ideal for studying. It did not require any downloads or applications. The simulation could be easily accessed from any computer with an Internet access. Team forums were easy to use; there was a discussion forum, which supported the team communication. Even though students were working in virtual teams, each team member had also a personal account which enabled them to work independently if they wished, and later combine their outcomes with the team decisions. Students found Cesim Global Challenge effective for studying and developing their virtual team skills.

Adobe Connect, a web conferencing software service, was used for webinars, additional sessions and feedback. It was another solution which did not require any downloads and it was therefore easy to use. By using Adobe Connect, the instructor could make individualized connections to the students for mentoring.

Curriculum requirements and the learning objectives were challenging and highly professional, setting a guideline for the quality content and study material. To support adult learners, study material was interactive and rich in media, using documents, photos, videos and links. It was available on Moodle for independent study.

Behavior

In a culturally diverse learning environment, interactions between the students and the instructor were mostly beneficial, yet sometimes also a challenge. Working in teams, students could practice their team skills, and they could learn from each other by sharing information and knowledge. Also, it was a great opportunity for expanding cultural awareness and understanding. In general, multicultural teams seemed to work as well as the teams consisting of only Finnish natives. However, a closer look revealed that team dynamics were sometimes challenging, due to misunderstandings, poor time management or strong personalities. Whether it was caused by personal or cultural traits remains unknown.

Some students may find studying online challenging or even hard, while others may find systems and platforms complicated. To avoid any misunderstandings and to help students solve their problems, the instructor was available for personal assistance. After completing the course, the students gave a positive feedback (4.2 out of 5). They felt that they were able to reach their learning objectives. Cesim Global Challenge helped students understand strategic management in a complex global market. They were able to develop a more practical perspective to management work as well as the management team's roles and responsibilities.

Organizational and Social Factors

Especially in a multicultural learning environment it is important to recognize that students have different learning strategies and skills. Adult learners may not have been studying for years, and therefore, they may sometimes need support to improve their academic skills. Studying in English may not be easy for non-native speakers either. Fortunately, Cesim Global Challenge had several language versions, so that some students were able to review the business simulation in their own language. Especially one team found this feature helpful.

Conclusions of the Case Implementation

The concept for this course was originally designed and developed for e-learners in 2012. Since then, it has been implemented in 2013 and 2014. For these implementations, the study material has been updated and new material has been added on Moodle. Adobe Connect has been replaced by the Cisco WebEx for online meetings. Cesim Global Challenge is still the best learning solution for this course, yet the user interface has been updated and improved. Cesim's technical support is still excellent.

Each time, it has been rewarding for the instructor to see how adults get involved in Cesim Global Challenge; how they invest hours on their team work and competing against other teams; how they work hard every week to reach their personal learning goals, and how they feel good about their own accomplishments. Some students even applied their learnings from the case at the workplace.

This is an ongoing project. Next implementation will be in spring 2016.

4. Summary

E-learning has changed higher education dramatically during the past twenty years. Gamification is a more recent phenomenon. The combination of both has upgraded learning and teaching to a totally new level. This paper explored how these learning strategies influenced on learning in global adult higher education in international business.

The concept and effectiveness of e-learning were discussed in chapter 1. Effectiveness can be evaluated by the quality of technology, ie. platforms, and curriculum. The curriculum should allow an efficient use of computer systems and media. The behavior and co-operation of the adult learners and teachers is crucial. Cultural misunderstandings may occur both in verbal and non-verbal communication. If the environment is supportive, the students can reach a flow experience, and they really benefit from e-learning.

Gamification is quite a new approach to adult education. The concept itself is still evolving. For the purposes of this paper gamification was understood as the use of gameplay mechanics for non-game applications. To engage adult learners in international business, the game should provide some value to the players. In addition to badges and levels, international business students value rewards such as high turnover, increased market share, etc. Adult learners base their decisions on more careful calculations because of their work experience. On a personal level, the students earn study points, certificates, and scholarships, to mention a few.

A successful implementation of a business game Cesim Global Challenge was introduced. Designing and implementing the course followed the ADDIE model: Analysis, Development, Design, Implementation, and Evaluation. The game was part of a Master's level strategy course in international business at Satakunta University of Applied Sciences in Finland. The students represented eight different countries, and were located in Finland, Sweden, Norway, and Russia.The implementation of the course came to the third place in an international business game competition 2015. The supervisor was the other author of this paper, senior lecturer Riitta Blue.

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