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NEW DIDACTIC METHODS IN CLOUD TEACHING

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Abstract: This article deals with how gamification can open new ways in the education of cloud security. The new generation needs more exciting, more engaging tools at all stages of the flow of information – browsing webpages, reading news, using apps on mobile devices. This article focuses on those elements of gamification which can give a pleasant experience for the users, making them stay on the browsed pages and making them engaged for the downloaded applications. Cloud Computing is a widely used platform – and cloud security rules have to be kept by every user. But how can we make the users feel responsible for this security policy if they have no motivation to read at least the terms of use? A possible solution would be: gamification didactics tools.

Keywords: cloud; cloud computing; cloud security; cloud awareness; gamification; education

INTRODUCTION

This article deals with new training solutions which make long-term education more enjoyable and less expensive. In a previous article [2] the characteristics of personal trainings were examined – these can be highly enjoyable, however they are the most expensive form of education. Of course not any subject is suitable for gamification – In the following, a novel approach is made to gamify a seemingly uninteresting topic: for example cloud security.

Two different user groups will be observed, describing the ways of teaching in these different platforms. Useful ideas will be discussed with the aim of reaching the audience and maintaining their attention. After having achieved the engagement of the audience for the gamified education app, a self-educating, satisfying IT teaching method can be established.

WHERE TO TEACH CLOUD SECURITY

Cloud Computing is a widely used platform in different environments. Several service providers make their services or applications accessible for all types of users from the cloud. It is essential to develop safer and more reliable apps which can be suitable for all users. Although safe using is the end user's responsibility, service providers create more and more simple and compact applications with built-in safety elements.

End users can be divided into two main groups, focusing on the course of the utilization. The first one: the so-called grouped using, when users are under a mobile device group management, under a company policy. These users' devices are under protection from outside threats but this gives them less freedom of use. The security policies are written by the company and all end users have to keep all rights by the enterprise. Cloud Security awareness is low but the developing could be organized and managed by the company. All education types could be suitable for the users because of the company's supervision. If the goal is engaging the participant, it is necessary to find and apply didactic elements that give success and self-motivation.

The second group includes consumers who can access the cloud using any device. The market offers the mainstream in usage but the device protection belongs to the end users. A wide range of apps address mobile users and most free apps are available with a simple free cloud account. In most cases, free of charge apps are the most expensive goods in the market – users pay with data, with usage information, user habits.

In this case there is no obligatory action to force end users to learn the security rules or comply with them. Here the only way that makes end users more compliant is creating an attractive platform which can be lovely, exciting and addictive enough to open it whenever the user has some free time.

HOW TO TEACH CLOUD SECURITY

First of all, teaching cloud security is the most important task we have to manage. Security questions are here, the cyberspace era poses frightening issues. Any IT device, software, hardware is reachable for everybody, and one cannot mention any kind of job not using an IT application via Internet. IT became an essential service, and all parts of business and private life use IT and cannot manage most actions without IT service.

Cloud computing brings new training and learning tools into education. Teachers or trainers reach their students in an easy way on different platforms, for example using web conference, social community sites, common sites, hosting sites or they can evolve a closed user group for a training team.

The advantages of cloud computing mean new possibilities for students as well. Students have access to the internet anywhere and anytime, they can even attend lectures of various universities simultaneously. Borders disappear, there is no physical barrier, and there is no distance between students in different universities, different countries. Students can use any device they have and connect easily to the university cloud. Studying can be supported by a range of

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interactive or online elements, students can help each other solve a problem or they can work together on the same project using co-working apps.

Another advantage of using cloud at the university is the fact that students can get in-depth knowledge of the cloud which can be an asset for a job application. Students can take part in foreign scholarships or foreign projects without travelling abroad.

In Hungary, some universities have started to use advantages of the cloud. For example, the Óbuda University started a course in 2014, which is available for students at partner universities. The Informatics Faculty of ELTE was the first in Hungary that moved to the cloud, providing several features to its students. The University of Miskolc and the University of Debrecen have also moved to the cloud and provide their students mailbox, SharePoint sites, OneDrive cloud storage with 1 TB and professional web conference with presence and chat functions.

GAMIFICATION

Gamification is the straightest way to engage the customer. These days, one of the biggest problems in the online world is how to pay attention and maintain this attention for a while. Browsing a web page, downloading an application – it is engaging the attention just for a few minutes, or just for a few days. The best market-leading game software companies know the secret to keep the users in front of the application for hours. With gamification we can reach the end users regardless of age, geography or IT platform.

Nowadays website visitors need more visual information and less text, less uninteresting information. Text length is reduced, and the imagery is more expressive. But this is not enough to make the user an engaged user. Users want to be part of the story, part of the act, have influence on social networks, and have responsibility for the other users. Gamification can give all these features for all end users.

Chao Liu from Microsoft Research says that an average website visitor spends only 10 seconds on the site before deciding whether he/she wants to keep on reading or not. If the visitor spends 30 seconds more on the same website, there is a chance that he/she stays 2 whole minutes more. In mobile platform the results are more worrisome: according to Localytics research, 69% of the users use an average app at most 10 times. [5]

Gamification can be a motivation tool for every customer:

- Desire
- Motivation
- Task
- Challenge
- Compliance
- Reward
- Feedback
- Excellence

And what does engaging mean? If we can evolve an engaged user, we can get a variety of information on his/her habits:

- Actuality – When was the last login?
- Frequency – How frequently are the users visiting the app/site in a time period?
- Period of time – When do the users log in and how long do they stay there?
- Spreading – How many users refer to the app or site?
- Assessment – How do they like and evaluate the app or site?
- Awareness – In test methods, how many users identify, recognize a specific brand or product?

EFFECTIVENESS OF GAMIFICATION IN EDUCATION

Applying game theory online involves more than creating a contest. It applies the concepts of game design thinking into non-game applications. Gamification is a psychological process, utilizing public recognition and online competition to generate interest. [1]

Gamification could be a better way to get hold of crowd to increase the awareness of cloud security. Gamification techniques could be an enjoyable, long-term, impulsive and motivating education or marketing didactic tool. Some companies with different profiles tried it and could achieve higher or stronger profit. There are some significant results in cloud CRM usage of gamification, SalesForce could increase the sales process with 70%. [1]

Compared to other methods, gamificiation is a much more effective way to transmit information to large publics. Online trainings are less efficient, but they can reach more and more students in the world, in different languages at the same time. A subjective observation is that users do not take offline e-learning lessons seriously, not even the exam at the end. Online trainings are not free from restraints: tutor and students need real-time communication, so they have to be online at the same time. Tutors invest more energy to draw the attention – but in fact students give less heed.

Using gamification, tutors and developers make students into real participants – by involving them in a community or a motivating system. It is an interesting challenge to draw the cloud users' attention to the weak points or dangerous situations of usage of cloud computing. With gamification, users can learn how to use IT and cloud in a secure way – they can teach each other, debate issues, create workgroups and collect points for all these activities in the cyberspace.

With gamification it could be easier to teach the public and achieve educational goals than with any other web-based didactic tools. The author of this article has experience in editing e-learning materials, which can reach more students at the same time, in more languages, but she is not convinced of their effectiveness.

Using Gamification the users can be kept focused in a very addictive and motivating way, utilizing their social and game passions. It is a success if an enjoyable and interesting way can be found to inspire trainees to keep on learning.

Some elements of games that may be used to motivate learners and facilitate learning include:

- Progress mechanics (points/badges/leaderboards)
- Narrative
- Player control

- *Immediate feedback*
- *Opportunities for collaborative problem solving*
- *Opportunities for mastery, and leveling up*
- *Social connection*

Some of the potential benefits of successful gamification initiatives in the classroom include:

- *allowing students to work on their own*
- *opportunities for identity work through taking on alternate selves*
- *freedom to fail and try again without negative repercussions*
- *chances to increase fun and joy in the classroom*
- *opportunities for differentiated instruction*
- *making learning visible*
- *providing a manageable set of subtasks and tasks*
- *inspiring students to discover intrinsic motivations to learn*

Statistical research has been done [3] about the effectiveness of gamification in education. Comparing gamification with any other web-based education method, it is clearly seen that the involvement of gamification in the education of participants has significant advantages. There are clear differences in engagement levels between the groups (see Figure 1 for a summary of the results which showed a clear increase in engagement in the experimental gamified group). [3]

Specifically, it found that the gamified, experimental group:

- *had more members who gave responses(83% vs. 68% of members)*
- *was more likely to start discussions, as a greater proportion of posts were in response to other members' answers rather than directly to our structured questions (37% vs. 3% of posts were comments in response to other members' answers)*
- *had a higher average number of posts per participant (2.3 vs. 1.5)*

Unfortunately, due to the relatively small size of the group, it was not possible to take the results as clear-cut evidence for gamification's effectiveness, regardless of how compelling the results appeared. [3]

Kevin Spier and Dan Maier of Bunchball published another case study of gamification effectiveness. Bunchball integrates game elements into websites and non-traditional game media. They partnered with NBC Universal to revamp the fan site for their comedy series, Psych. Bunchball added several game elements to the site in order to achieve this goal, including allowing fans to accumulate points for completing tasks such as watching videos, solving puzzles and listening to songs. These points could be redeemed for prizes such as T-shirts, mugs and small autographed items. In addition, high-scoring fans competed with each other via an online scoreboard. [4]
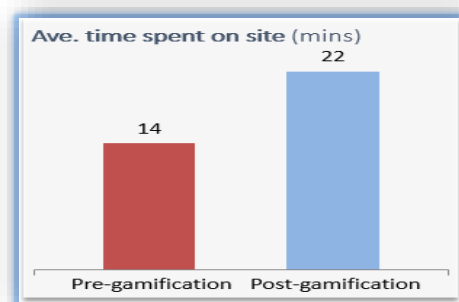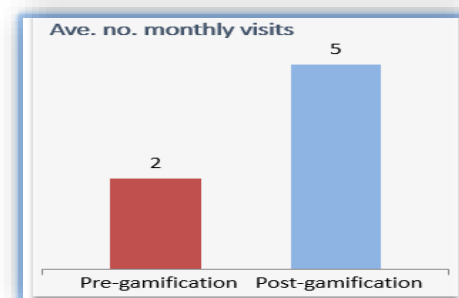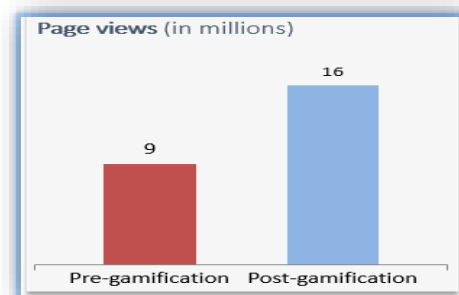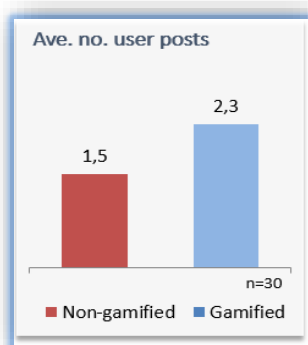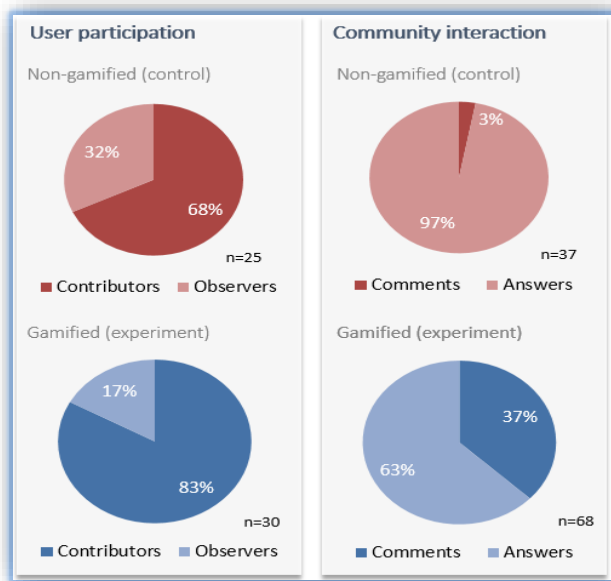

Figure 1: Proportion of non-gamified and gamified participants

Figure 2: The effect of gamification in visiting, and spent time

The results seem to justify the value of creating a compelling online experience through game elements:

Ξ   Overall site traffic increased by 30%,
Ξ   Page views increased from 9 million to 16 million within the last gamified season,
Ξ   The average visitor came four to five times a month instead of only twice a month,
Ξ   The average time spent on the site increased from 14 minutes to 22 minutes,
Ξ   Online merchandise sales increased by 47%.

CONCLUSION AND FUTURE WORK

The author's future plan is to test gamification in a real enterprise environment. It will be a challenging task to select the most suitable platform, the suitable device, the methods, and the types of gamification to be applied. The author has already started collecting ideas for this test and its results are eagerly awaited.

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