Gamification in Education industry

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ABSTRACT

Gamification is the emerging trend these days in various sectors like service training, business, health, organisational management, politics, retail and education. Gamification is widely used in education these days so it is necessary to study the different aspects of it. In this study we are using secondary data to analyse the importance and process of gamification. Further in this study we will analyse the tools for gamification. The purpose of the study is to study the process of gamification, the software tools used in gamification. In the end it leads to the conclusion that Gamification is an efficient instrument to bring out constructive changes in attitude of students towards learning, improving their eagerness to learn. The outcomes of this are dual, one, they improve results and grasping power of the content and generate conducive environment for learning

1. INTRODUCTION

Gamification is the emerging trend these days in various sectors like service training, business, health, organisational management, politics, retail and education. The term gamification means using game mechanics in non gaming context[1] or it can also be called as the event of creating a gameful experience for the user[2]. Gamification is embraced in different situations and for diverse purposes. It is also used as a operator to promote elementary things like customer engagement, boosting the brand of company, learning, employee performance and crowd sourcing initiatives.
"Capacity to strengthen engagement, supporting innovation and change in behaviour of users is the main reason behind extensive interest of people in gamification these days " , according to Gartner Inc.1. As a matter of fact, these days most of the services are gamified [3], because of element of motivating students gamification is lifting off in education [4], and leading to enhanced learning procedures and results. Introduction of gaming element in the learning process design is important, before establishing a conviction about need of gamification[5]. In this paper the results of the recent literature search and review by the authors, in relation to gamification is described.

In education sector gamification is the latest emerging trend. Tremendous amount of research work has been done on gamification and is getting published on regular basis [6]. We are

focusing specifically on the literature related to gamification and education which includes good amount of research work [7].

The term gamification has been coined recently[1] it was introduced in the year 2002 but in 2008 the gamification was actually used, before that there was no documentation of its usage, and in the second half of 2010 it was widely adopted. Yet the concept is not new because badges and ranks are used by Soviet Union leaders in military as a replacement of financial benefits for their good performance etc. Gamification is rapidly adopted by business, wellness and ecology initiatives, marketing and corporate management. This is because of its potential of shaping the behaviour of the users in the desired direction. Nike+ , foursquare and frequent flyers are examples of successful gamification which uses loylty programs for mass marketing of their products. Image of user improves as he gets votes for his answers, this is another example of Stackoverflow.com. Educational websites such as khanacademy.org and codeacademy.com use various gaming elements to engage their users. Badges are earned by the user on completion of every course or lesson. To encourage a healthy and friendly competition among the users and for keeping them busy ebay and fitocracy are using various gaming elements.

Gamification has made its own space in the recent times. If we take into account Gratners Hype Cycle[7], a research tool which talks about commercial success of new technology, gamification gained hype cycle peak in 2013, it is expected it will reach a high point of productivity in another 5 to ten years. This largely mirrors use of gamification in businesses. At the same time concept of gamification is still making its space in education.

For motivating , learning and engaging people game based mechanics are used. Use of thinking applied in games in any other context than game is gamification. It also improves learning and motivation whether the conditions are formal or informal. Gamification is a combination of various cognitive activities and gaming elements that are actually not games. There are some unique features of games that plays an important role in gamification:

1. Points- Collected after executing the task.
2. Levels- Based on point scores which user passes
3. Tasks/ challenges- Performed by users to proceed towards objectives.
4. Users- These are the students or customers.
5. Badges- Rewards given after completing the task.

Ranking- Grading is done according to their accomplishment.

2. REVIEW OF LITERATURE

[1] have studied gamification in Educational context. It was found that very less
Research has been done in context of gamification as an element of human-computer interaction. Further [1] propounded the difference between play and game. Proceeding further Zicherman
(2010) defined gamification as a process whereby people make use of critical thinking while solving the problem. Zicherman further emphasised the importance of aesthetics in gamification. He stressed upon the point that gamification motivates people.

Purpose of learning through game based use of non- digital and digital games and simulations is to achieve one or multiple learning objectives, Games may be already developed by someone else or the users themselves may develop one. However, assumption that the ones using game based learning do not include it in the design of curriculum, is the only, though small problem with this definition. In the same line, with various outlooks

coming forth with respect to education and games, it appears of the two possible developments one is progressing. In such a scenario gamification will come out as the reimagining of orthodox strategies deployed in education to build much stronger internal and external motivation in the learners as compared to something very novel. Yet in another scenario gamification and game based learning are two totally different areas. The later involves usage of actual games for educational purpose for a specific learning objective [1]; [7] and the first one is use of elements of designing games in a context which is non game. Gamification has been used as interchangeably with game based learning by several authors. Gamification and game based learning follows the same concept in context of teaching electrical engineering in virtual setups.

3. OBJECTIVE
- To study the software tools for gamification.
- To study the process and importance of gamification.

4. RESEARCH METHODOLOGY

Gamification is widely used in education these days so it is necessary to study the different aspects of it. In this study we are using secondary data to analyse the importance and process of gamification. Further in this study we will analyse the tools for gamification.

5. DATA ANALYSIS AND INTERPRETATION

5.1 Process of GAMIFICATION IN EDUCATION

For effective implementation of gamification in e-learning, detailed analysis of prevailing conditions and software tools are required. Strategy include following steps:

1) Determination of learners' characteristics

Before implementing new approach in learning process it is necessary to describe students profile to determine the suitability of new techniques and tools. The factors which impact the students engagement with learning content are, students attitude and their willingness to participate in such learning events that are competitive. The teachers must ascertain and bear in mind the skills required by learners for achieving the objectives. Easy or on contrary difficult tasks both act as demotivating factors and have adverse impact on learning outcomes. The student will look forward to participate in training if they relate to the context, the process of learning itself and what follows from achievements.

2) Definition of learning objectives

It is important that outcomes of learning are defined clearly and are specific. The main aim of education is to accomplish the learning objectives else entire effort will be of no consequence. Objectives include the type of educational content and tasks used in game mechanics and learning activity to achieve them.

3) Creation of educational content and tasks for gamification

 Material of teaching should comprise of participative, interesting and should use element of modern technology. Training tasks should be formulated according to the learning objectives [8]

Numerous paths- To develop multiple skills in learners, there must be multiple paths to reach those objectives. Which gives students the platform to form their own strategies, this is the main feature of active learning.

Numerous Performances- Design of learning activities has to be such that it gives opportunity to reattempt in case of failure.

Flexibility- Learning activities must be attainable. They have to be customized according to the capacity and competence of the students.

Increasing the level of difficulty- The tasks should be in increasing order of complexity and effort required, it should correspond to the newly acquired skills as well.

4) Adding game elements and mechanisms

 The main element of gamification incorporate the tasks that learner has to perform. Winning rewards, reaching higer levels and earning points totally depends on the performance of learner. The components of training depends on the predefined objectives of acquiring skills and knowledge by performing the task. Independent activities performed by the students results into winning individual rewards i.e badges. The tasks that require interaction with other users can be seen as social engagement in training they in turn create communities of learners and their results are visible to all such as leaderboards.

5.2 SOFTWARE TOOLS FOR GAMIFICATION

 There are numerous tools available for gamification. some of them does not require any special software for installation and can accessed anytime from anywhere, such as- FlipQuiz, Ribbon Hero, Goalbook, Socrative, Duolingo, Kahoot! And Class Dojo [9]. Where as on the other hand BadgeOS™is a free plug-in to wordpress that by itself leads to setup of pages required for badging system and develop an array of achievements. The goal of Mozilla Open Badges project is to quantify the results of informal learning acquired by the students outside their classrooms. By using Mozilla Open Badges all participants can display their badges to others by using technical shared infrastructure.

5.2.1. Gamification and LMS

 LMS is a very important tool used by various educational institutes to offer large variety of e-courses with learning tasks and resources[10]. To improve the cooperation and collaboration among the users LMS allows the use of Web 2.0 tools which enhances their performance. LMS also has automatic tracking system which helps in tracking the progress and results of the students, which gives appropriate environment for gamification [9]. We can also retrieve the information about the time spent by student for exploring and viewing the content available on the site. For active participation in forums, discussions and blogs users are encouraged to create content on wiki pages. New features and functions are regularly added to the LMS. Gamification App created by Docebo allows the administrator to generate badges and rewards for the winners in LMS. Accord LMS encourages collaboration and team building social feature. Badges and Leaderboards are awarded to students for their

achievements and contributions . To keep students motivated and engaged Blackboard has an accomplishment tools that gives students a chance to get recognition for their work [10]. Criteria for issuing certificates and badges to good performers is formulated by teachers.

5.2.2. Gamification in Moodle

Another tool used by teachers for managing online learning is Moodle. Moodle is a kind of LMS Which aim at many features which facilitates learning in gamification process. Few Moodle gamification features are [7].

Users Profile Picture – The profiles have fields for uploading their pictures. This allows students to display their photos on their profiles.

Displaying Student Progress – Displaying progress leads to realisation amongst students that the tasks which earlier appeared isolated are actually interconnected in whole scheme of things and a goal gets achieved through them (The Beginner's Guide to Gamification). Moodles displays student progress as bar graphs in its e courses. This bar graph displays the activities needed to be completed and resources to be utilised, also, it shows the progress made by students. Completion tracking leads to tracking progress [10].

Showing Quiz outcomes- A designated block for results of quiz displays the results of assignments or/and quizzes. It helps measure the level of the acquired skill and knowledge. This block can include the best performers and the ones at the bottom, this adds competitive flavour to learning [10].

Levels – This block shows where the student currently stands and the progress made towards next level. Moodle calls it Level up, and this collates and assigns to students points as per the pre set rules. Setting up is prerogative of teacher and he can attribute to them different variables. Also student ranking can be shown here.

Feedback – Quick and constructive feedback leads to students being motivated, more engaged and they get encouragement to continue their effort. Activities like assignments and then tests are places where feedback can be given. The feedback can be general in nature at times and at others it can be more specific. In learning environment feedback plays role of motivator for upcoming activities.

Badges – Once a student achieves a given level of competence and/or gains knowledge of expected level he can get a badge. This shows students rewards and achievement. A big advantage of this is that the student gets chance to demonstrate his level of skill or knowledge acquired(The Beginner's Guide to Gamification). On each caourse, Moodle displays feature which helps in tracking completion of task. This gives teachers an option to reward students with a badge on completion of given activity. The badges can be chosen from Moodle Badges library and awarded at appropriate achievement. Moodle badges works on web, iPhone, Moodle 2.7, Moodle 2.6 and Moodle 2.5.

Leaderboard- Ranking Block is an attachment given by Moodle which allows to display leaderboads of users based on their points. Ranking Block monitors incorporates many features like assembling the points on completion of the course. Leaderbords are source of peer appreciation as the are visible to each one of them. Students can evaluate their performance by contrasting it to that of others. Leaderboards motivate learners to compete with others and should actively participate in learning process. Moodle also support processes to restrict access of e-courses content. Different criteria's or conditions are set by the teachers to access the performance of students in various activities. Another tool to access

the accomplishment of learning objectives are conditional activities, so as learners can continue to the next level of activities.

So there are various ways to use gamification in Moodle. Tracking students performance and automatic processing of the data is the main objective of leaderboards.

5.3 Importance of Gamification

Gabe Zicherman believes learning based on game mechanics is 40% more efficient than conventional ways of learning. Any game based approach garners higher commitment and keeps the users more motivated towards the activities or the processes they are involved in. Consumers, employees in companies and most certainly are quite familiar with game mechanics.

The biggest problems faced by modern educational setups is the absence of motivation to learn and active engagement of students. Prodded by this the teachers look for such tools and techniques which get more engagement and participation from students. One way of doing so is rewarding students by awards for efforts and achievements, such decisions can be made on the basis of usage of elements of game in learning.

From perspective of education Gamification can be defined as usage of elements of game mechanics in education. ICT based learning has created a very conducive environment for rolling out gamification, it helps in churning the student data, tracking progress and then creating detailed reports.

Some aspects of learning that are closely related to games and training make it a logical consequence to introduce gamification in education. Students are supposed to reach a defined goal overcoming the obstacles which are integral part of game. Through interaction with study content a certain objective needs to be achieved. As the coming steps and actins are determined by the results of previous task, therefore, it becomes imperative to track progress made by players in game, similarly it becomes essential to track and measure students progress in educational setup. How well the student has performed in previous tasks determines the learning path for student. Objective of learning should be developing teamwork and collaborative approach towards achieving group goal than competing amongst themselves. Collaboration of games in education industry leads to more effective learning. The games that are training based provides more competition among people.

Gamification has direct impact on dedication, eagerness to do something and behavioural aspects in students, its not limited knowledge and skills.

6. CONCLUSION

 Most suitable partner of gamification is e learning. Tools of gamification can be integrated into learning process so as they lead to student engagement in friendly and healthy competition with peers. This is an efficient instrument to bring out constructive changes in attitude of students towards learning, improving their eagerness to learn. The outcomes of this are dual, one, they improve results and grasping power of the content and generate conducive environment for learning.

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