Gamification Study Scenario Design in MOOCs

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ABSTRACT: Gamification is a brand-new learning philosophy, through which the game factors, methods and frames can be integrated into learning circumstances, thus improving the defects of MOOCs (Massive Open Online Courses) which is in short of enjoyment, interaction, challenging and competition. In this paper, the writer proposed of creating MOOCs gamification scenario system framework on the MOOCs intelligent study platform in compliance with gamification philosophy and mechanism by designing various functional factors of gamification study. Finally, it focused on the key elements for designing process, including scenario layout, pass-level design, game rules and difficulty control.

1 PREFACE

As long with continuous development of educational informationization technology, MOOCs gradually increases the influence on the education. As per a up-to-date global statistic data, there are more and more people, schools and institutions that start using MOOCs, so long as they begin recognising and accepting this kind of mode. In 2013, there were only 13% of schools launched their own courses by means of MOOCs globally, but, up to 2016, there will be 43% of colleges or universities launching the courses like that. Meanwhile, there will be about 83% of institutions that will consider taking part in such online education organisations, such as edX, Coursera and Udacity.

However, after a few years of practical application, some defects of MOOCs have been emerged, of which some problems in teaching design are to be resolved, including insufficient creative teaching mode, challenging and competition, difficult to carry out based on materials, etc.. In 2013, after issuing <The Year of the MOOCs>, the <New York Times> published another essay that pointed out: “The initial application outcome of MOOCs is disappointed, whose teaching effect could even hard to compete against college face-to-face courses. This resulted in suspicious introspect on the significance of MOOCs for higher education.”

At present, with respect to a series of problems of MOOCs, the educators and researchers have proposed of quite a few solution ideas and blue prints. In this paper, the writer put forward a gamification learning philosophy which can be integrated into MOOCs, by creating gamification study scenario in MOOCs, thus resolving and improving the existing defects in MOOCs.

2 ABOUT GAMIFICATION STUDY

2.1 Conceptual framework

The gamification study is to integrate game factors, methods and framework into the learning circumstance which is not attributed to game scenario and plot. From the perspective of teaching, it means working out a study scenario which is featured in intensive game atmosphere by selecting appropriate development tools, evaluation methods and instructional strategy with game design approaches, under the guidance of gamification philosophy, in compliance with fostering objective and developing goals, evaluation measures, as well as learner’s age and psychologic traits, etc., during the process of instructional design.

Actually, gamification study is to motivate students learning by themselves, and transmitting the knowledge under the circumstances of gamification scenario by means of game’s traits, taking advantages of gamification methods. Under such a circumstance which is elaborated as games, the learners can solve the problems during the interactive process of man-to-game scenario, complete the tasks, and experience the learning pleasure while internalising the knowledge.

2.2 Gamification Learning Mechanism

In compliance with game’s personal and interpersonal motivation, it cannot be only combined
with games plus courses if intending to implant the gamification study philosophy into course design, nor does it apply the game for solving the problem in the courses or as a approach of exercises. But, the game thinking and mechanism should be wielded to the entire design of the online courses, to motivate the learners by means of tasks, rewards, challenge, competition, curiosity, etc., so as to encourage the learners interacting and studying. Therefore, the various gamification mechanism has to be set up in compliance with game motive requests under the circumstance of gamification study scenario.

Incentive mechanism: As all know, challenge is the core of games. Setting up challenge at different pass barriers in games is a typical incentive mechanism. Upgrading is granted to after successful challenge and scores or some rewards can be obtained. It is a perfect psychological experience, so is the main reason why the games attract target groups. Under the circumstance of gamification study, the internal rewards are set up to attract the players to accept learning more positively. After finishing some tasks, or meeting some requirements of scores, or completing an extra challenge, rewards should be granted to without any hesitation.

Difficulty equilibrium mechanism: The game level upgrading setup is one of the most uncertain issues in games design. Remarked Mihaly Csikszentmihalyi, while balance between the game player’s capacity and level upgrading difficulty is reached, the players will perform with most satisfactory productivity; if, however, the challenge is too difficult, which’s far beyond the player’s capability, they will become anxious and grouchy; on the other hand, if the challenge is too easy, they will get tired of the games. Only with appropriate challenging difficulty can it bring the learners the utmost motivation with top stimulation.

Evaluation mechanism: During the period of gamification study, the system records learning situations of the learners via visual data, such as practice time, video chatting, number of winner’s badges and achievement levels. Afterwards, the system or instructors analyse the learners learning behavior according to these data, and work out relevant evaluations, which is therefore identified as evaluation mechanism. When evaluating, various factors, such as learning motive, effect, capacity, collaboration and feeling values, should be inspected.

Feedback mechanism: After completing some tasks, the system should carry out relevant feedback for the learners, such as giving correct answers or providing relevant train of thought, clue, etc., which is therefore named as feedback mechanism of gamification study. With the stimulation of feedback mechanism, the learners are able to understand their own academic situations, such as content comprehensions and mastering extent of skills, so that it leads them to adjust the relevant learning process. Only with feedback information, can it control gamification study in a timely manner, providing appropriate orientation, guidance, error correction and evaluation, further with systematic intelligence prompt or teachers assistance to help the students solve the mystery.

Competition mechanism: In most games there shall be a ranking scoreboard set for the players, so that it displays efficient levels and accomplishments of different players, which is therefore called competition mechanism. In the gamification study, the competition is necessary, too. Only with this mechanism can it urge the learners to intrigue and sustain their learning motives, thus fostering their courage and insight of accepting challenge. In the competition mechanism, it should allow the students to chose their competitors in compliance with their own capacity, so that it could further stimulate their passion.

Collaboration mechanism: In some online games, as barriers are complicated, only teamwork can make it different. Apart from competition, gamification study should be adapted with collaboration. The learners can team up for the common objectives, exerting their talent, separating their jobs with different strengths respectively, showing the team spirit and power, therefore it fosters their collaborative vitality and collective honorable reputation.

2.3 Key elements of gamification study

Objective establishment: In gamification study, the quantification learning objective should be clearly identified. Only with this mechanism, can it lead the students to positively construct their own intellectual system. It is beneficial to students in terms of self-tought orientation with definite design, segmentation and spiral esclation of academic objectives.

Creative design scenario: Gamification study must integrate learning contents with emulational academic scenario, to solve the problem in the artificially virtual scene, and finish the periodic tasks. The scenario layout of gamification study is just to create and design an interactively virtual circumstance of gamification, to integrate all kinds of learning resources and materials into a virtualised situation with highly emulational context, so that it enables the players to get totally involved in the common games.

Tasks breakdown: In the course design of gamification, the learning contents can be broken down into academic activities/tasks with different levels, and each task/activity undertakes one small knowledge point. Moreover, the activities/tasks design must be adaptable to logic, so as to reflect teaching contents accurately, attract the learners to study relevant knowledge and skills, process and
methods, emotional attitude and values during the game task performance.

Navigation: Once the tasks and game passes are ready, the overall framework of activities and tasks have to be made as arborescence. The navigation chart should be designed in compliance with logical relationships running as top-down, from big to small, and decomposed layer upon layer. On the top, it is the key task, followed by secondary task, in which the second-level task contains more subordinate tasks, till the bottom fundamental task/activity.

Game passes: In order to reflect the incentive mechanism, gamification study scenario, as the same as other common games, must be built with various game passes under the learning circumstances. The game pass setup is actually to display all kinds of learning tasks by means of games as those little activities and barriers one after another. By converting the tasks into question scenario, that is to say, creating and designing one or more scenario to resolve the difficulties, it leads the students to understand such tasks constructing knowledgable games according to such circumstances.

Game rules: Since gamification study is a game, the game rules are indispensible. Therefore, the game rules have to be set up as the same as other games under the circumstance of gamification study. These rules are generally virtualised, man-made, and the related to provisons that the learners have to abide by. For example, different level tasks are adapted with different points, and point rewards are granted to those who are willing to complete extra tasks, etc..

Socialising: In order to reflect the collaborative mechanism, a free communication space for the students is needed under the circumstance of gamification study, as founding a “circle of friends” for the players. In the circle, the students can chose competitors to study together, thus turning to be a small class. Once the circle of friends is made, the learners can share their experience and insight, and ask for help, as well as make the best of the both worlds. The best advantage of communication space is to help students in solving practical problems during the game process, improving game strategy and learning efficiency.

Ranking: In order to reflect the competition mechanism, the scores of all players in the circle can be set up as auto update ranking scoreboard. Once the ranking scoreboard is set up, one can easily find his/her position in the circle, so that it stimulates the learners trying to surpass their partners by ceaseless challenging themselves therefore it further inspires their fighting spirits.

3 GAMIFICATION STUDY SCENARIO DESIGN IN MOOCS

Currently, since MOOCs is fundamentally based upon traditional class teaching mode, with insufficient enjoyment and interactivity, lacking attraction to the students. In order to improve such a situation, the learning philosophy of gamification can be introduced to MOOCs, thus creating and designing a learning scenario of game players. As gamification study scenario is a learning context with education purposes or academic objectives, it is not only a sight of gamification, but more focuses on learning trait in the process of games. This, of course, provides the learners with a brand-new academic circumstance featured in playing while learning, and learning while playing. It provides the learners with various gamificational learning resources and materials via constructing a interactive study scenario of gamification, by letting the students join the game as players to transfer the game intoxication to study, so that the interest of study can be pulled in.

3.1 Logical functions

In compliance with all kinds of key elements above mentioned, the overall design of MOOCs gamification study scenario are divided into eight functions, and formed relative logic relationship in successive order as follows: (see graph 1)

Graph 1. Logic function image of gamification study.

Study mission model: After breaking down the learning tasks, MOOCs works out arborescence task navigation chart as per learning task overall framework. In the function area of arborescence, the related links need to be set up, so that it is
convenient to display the course overall aims and the corresponding aims of all level tasks in MOOCs.

Task level graph: It breaks down a series of small activities and barriers by means of game passes with respect to each learning task, and forms successive order. Each task starts from “first level.” Only in passing the previous level can it move to “next level.” One should complete all task levels till finish “breaking through” at last, he/she then is allowed to enter next level (next task).

Pass-level activity card: Referring to the actual learning requests to be completed in each small activity and barrier for each level, it displays by means of activity card. Apart from illustrating study requests, more importantly, it facilitates the players how to carry out necessary drills in “training camp,” acquiring relative knowledge and capability, as well as passing tests.

Operation training camp: A training spot to implement actual operation and specific learning. This is the most critical learning function area, which needs providing theoretic knowledge study section, test section related front-panel, whereas in operating section it needs providing the skipping linkage under related circumstance, such as Microsoft Word, or Microsoft Visual Studio, etc.. Aside from conventional study, it also needs setting up extra learning contents in accordance with relevant tasks, increasing the exercise opportunities by drawing inferences about other cases from one instance.

Learning capacity sphere: In order to display the progression of the learners, it works out a spheric progression image representing capacity index or value, by calculating the learners test result scores in compliance with the stipulated game rules, with respect to each main objective task needed to be grasped in MOOCs.

Prize warehouse: After being rewarded, the learners then can get into prize warehouse selecting whatever they like. The prizes include ranking medals, ability tree ornaments and all sorts of vivid prizes.

Circle of friends in players: It links QQ circle of friends or WeChat circle of friends, by inviting good friends to set up MOOCs study group. In the function of study group, it can set up optional port for good friends, information communication space and ranking scoreboard.

Ranking scoreboard: It is used to checking the scores status of good friends in the study group, which facilitates the learner’s competition with each other. The function of ranking scoreboard can put it inside the circle of friends, and also can set up linking port on the desktop of study platform.

3.2 Hierarchic architecture

In accordance with above mentioned gamification study mechanism and logical function design ideas, together with overall systematic framework of MOOCs intelligent study platform, it works out the overall system design of gamification study scenario as three levels: the logical level, physical level and control level, as seen in graph 2. In graph, the one-way arrow indicates the control relationship of control level to physical level, whereas the double sided arrow expresses the logical relationship between logical level and physical level.

The logical level depicts the logical relationship between the function design of gamification study and MOOCs intelligent learning platform, whereas the control level traces out the control relationship of gamification study mechanism to MOOCs intelligent learning platform. As the previous four functions of logical level can correspond the learning module of MOOCs learning platform, it will complete the key work of MOOCs intelligent study. As the test function of “operation training camp” should belong to the test module of MOOCs, its test functions actually step over multiple modules. Thus, the “circle of friends” and “ranking scoreboard” are put in the socialising module of MOOCs study platform, to complete the competition and collaboration mechanism of searching for help and exchanging experience for gamification study.

3.3 Scenario layout & level design

In order to improve the game biofidelity, MOOCs gamification study scenario need to set up plot, by which the representation shall be those factors in graph 2, including learning task tree, task pass level graph, and pass activity card, etc.. These factors have to simulate the scene style of the games, performing to be rich in patterns, lifelike and vivid, and the layout design must be clear in logic with easy operation. Therefore, the scenario construction should be a combination of visual sense, hearing and action, which integrates the course ware, software and integrable ware to be as multimedia in MOOCs, dividing them to all factors of the learning circumstances.
The key step of scenario layout is pass-level design. Referring to pass-level design, it works out several learning steps broken down from current MOOCs learning tasks to be a series of logical small tasks and barriers. The learners ceaselessly get tasks, finish them and attain scores to be upgraded via a string of study passes. During the period of challenging some pass-level, the learners can enter in anytime the “operation training camp” when facing the problem (equivalent to replenishing energy or upgrading battle effectiveness in the games), solving the problem, facing new problem again and continuing to explore solution. From the “first level,” the learners cannot get into next level (next task) until reaching the “success by pass” of learning tasks.

3.4 Game rules & difficulty control

As long as gamification study in MOOCs is a game, the game rules design is therefore crucially important. The scenario layout, learning process and pass-level design in MOOCs, particularly the control unit of game difficulty, all need working out relevant game rules, which leads the players to complete appointed “success by pass” study in compliance with certain sequence and principle. Meanwhile, the MOOCs gamification study must carry out effective control to “pass-level” difficulty according to the equilibrating mechanism, with the sense of easy first following more difficulties, step by step, which thus can sustain the players learning enthusiasm.

For instance, after getting into normal study in MOOCs, the test result can be classified as A, B and C. Next, the relevant game rules and difficulty control can be worked out in accordance with the classification. With respect to grade C (disqualified, maybe the task is too difficult), the “makeup exam” with the same level but different items will be carried out. If, after all, “makeup” still fails, the next step will be “down graded one level in terms of difficulty.” Referring to grade B (mediocre with moderate difficulty), the players are allowed to move to next step (with the same difficulty); as for grade A (exceptional, with less difficulty), the learners are notified that the difficulty next step of study will be “upgraded on level.”

4 CONCLUSION

As for being featured in educational opening, flexibility and personalisation of teaching design, especially provided the users with learning context of gamification and socialising, MOOCs has been highly appreciated by many countries recently with rapid development.

The implantation of gamification study scenario is an inevitable trend for further favorable development in the future. As per up-to-date report of study plan launched from NMC and Educause, games are more and more introduced into courses as a teaching tool, and gamification will shape the courses themselves by utilising the game's own mechanism and culture, creating the mode of courses design accordingly.

So long as gamification study design is being further supported by the researchers and educational specialists, they become realising that the games can inspire the learners increasing the productivity, and carrying out creativity research. With artful integration of gamification study and MOOCs, it will undeniably bring the prominent innovation and development to teaching informatization of education accordingly.

REFERENCES