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UNDERGRADUATE STUDENTS' LEARNING PERFORMANCES OF THEIR SOCIAL GAMIFICATION FUNCTIONAL LEARNING ONLINE TO THEIR ENHANCING LEARNING BEHAVIORS TOWARD THEIR CRITICAL THINKING ABILITIES

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Abstract:
This paper is to report for developing a web-based form of social learning performances of the social gamification functional learning online to enhance behaviors and critical thinking abilities of undergraduate students, to assess the effectiveness of learning lessons that based on the development model in according to the Meguigans criteria, and to investigate of learning activities based on the theme of learning development were as the main purpose study which the sample size consisted of 28 full-time fleshy students who sat in the Computer Education Program, Faculty of Education in Rajabhat Maha Sarakham University. Administrations with the research instruments, such as; the Web-Based Lessons, the Learning Behavior Measurement, the Learning Achievement Test were used. Statistically significant was compared between students' learning outcomes of their learning different learning functions with an average mean score and the standard deviation was analyzed. The results of these findings have indicated that: the quality of Web-based lessons from professional content on the web techniques and methods evidence at a high level. Students' learning on the performance efficiency of the Web-based model was developed on the basis of Meguigans criteria as 1.06, which was more than one lesson on the Web efficiently. The effects of the learning activities as a form of social gamification functional learning online to the enhancing behaviors toward critical thinking abilities of undergraduate students, which revealed those students' learning behaviors of in the usual form of learning that develop depended on to a large extent at the high level. Statistically significant was compared between the average scores of students' critical thinking of their social gamification

functional learning online and usual learning form was differenced at the level of 0.01. Students' responses of their learning achievements in according to be developed the social gamification functional learning online was higher than their usual learning indicated that of 0.01, differentiated significantly.

Keywords: undergraduate students, learning performances, social gamification functional learning online, enhancing behaviors, critical thinking abilities

1. Introduction

How does teacher define 21st-Century learning? The term "21st-century skills" is generally used to refer to certain core competencies such as collaboration, digital literacy, critical thinking, and problem-solving that advocates believe educational institutes need to teach to help students thrive in today's world. In a broader sense, however, the idea of what learning in the 21st century should look like is open to interpretation and controversy (Rich, 2010). In the 21st century, focusing on the learning process of the students' higher-order thinking skills (Phanit, 2012) skills of information technology is used. Students born in the Generation Z will be able to use various communications media technology devices, and more recently, Thailand is entering an education reform in 4.0 eras, which is to create innovative learning to learners' skills, such as; learning behaviors, the critical thinking and achievement. Learning in this era need to focus on the students to build knowledge by their teachers (Klaysung and Koranikij, 2011) who taught modify teaching methods of teaching is to educate a mentor or a coach (Wongyai and Pattanapol, 2014) to consult with adviser who is a teacher to the learners for reducing the less role of teaching, focused on students' learning are more seeking knowledge through technology, and to be able to take the consultation or discussion through via social medias. Therefore, teachers should adjust and change teaching methods and to (Chaleonsettasil, 2016) create innovative learning by developing the new forms used to manage learning through online media to help students' learning all the time of their place self and to review the lessons at any time.

It is undeniably true that every higher education institution wants to boast that it offers 'high quality learning and teaching'. Mission statements consistently claim that universities and colleges seek to provide excellent teaching and a high quality learning environment. However, it is less than obvious that institutions are either clear about what these goals mean or actually pursuing these goals with strategic vision. In most cases, neither of these key goals is well defined: what is excellent teaching and what constitutes a high quality learning environment? The manner in which institutions are attempting to achieve these goals is many and varied (D'Andrea & Gosling, 2005:1).

Attempts to turn the rhetoric into reality are seen as improvements to the teaching and learning process in higher education to further assist students to address their learning challenges. In fact, many of the goals that are seen as ends, as improvements in teaching and learning, are only means to a higher-level goal. D'Andrea & Gosling (2005: 25) listed the following sets of goals for enhancing teaching-learning are provided.

In turn proposed a useful model to clarify what goals a particular teaching or assessment strategy is designed to achieve and also to address learning challenges faced by students in higher education. In fact, he stressed that the Teaching Goals Inventory should include higher-order critical thinking skills; basic academic success skills; discipline-specific knowledge and skills; liberal arts and academic values; work and career preparation as well as personal development. The desired outcomes needed for the 21st century graduates as well as the lifelong skills and values to be possessed by every educated person have been identified in systematic way (de Guzman, 2006: 49-50). This research study article related in the first survey has found that students with behavior problems, learning. This is consistent with Piasa (2010) is the students lack the motivation to learn and a lack of enthusiasm for acquiring knowledge and students lack critical thinking skills. This is consistent with Zangboonreung (2013) learning skills, critical thinking ability by 37%, resulting in the achievement of one of the factors that emphasize rote learning rather than practical that focused on lectures in class (Polsaram, 2013). In order to prepare to enter the reconstruction of Thailand 4.0 students who were born in the Generation Z should recognize the importance of learning in the 21st century. Students will have the skills, and learn effectively that finding in the second phase for bringing social package is a collection of online behavior in order to promote learning and critical thinking for undergraduate students (Dankham, 2016), which consists of four components: a gamification functional learning online, lessons on the Web, social media, and learning with coach pattern.

Researchers have developed a five-step process: learning motivation, challenging ideas, discussion and demonstration, operating on a mission reflection and evaluation in the third phase that to trial research is a form of learning that was developed by the development of the Web and a powerful lesson on the concept of metadata of Meguigans to compare learning behaviors. Students' critical thinking and their achievements, which were conducted during a class based on the developing model with their learning in the intervention pattern, were compared.

As above, somehow, this strategy has provided a clear picture of the kind of teachers Rajabhat Maha Sarakham Normal University in Thailand wants to develop. Under the similar circumstance, Boud (2000) highlighted that such an endeavour in education not only calls for formative and 'sustainable assessment' but also effective learning that could address learning challenges in higher education. Researcher team cautions that current assessment in higher education does not fully prepare students for

lifelong learning and holistic development suggested that teachers need to move from summative assessment that focuses on specifics, standards and immediate outcomes to more sustainable assessment that can aid students to become more active learners not only in managing their own learning but also assessing the activity-based learning, social learning model was a social gamification functional learning online for enhancing behaviors toward students' critical thinking abilities for undergraduate students by integrating social gamification functional learning online to enhance students' behaviors and their critical thinking abilities might be able to address many learning challenges faced by students in higher education and to produce better graduates in the higher learning institutes, which was in third phase in a form of learning that developed as a form of learning activities that are effective and useful for further studies.

2. Methodology

The study identified a qualitative approach to collect data of learning challenges faced by students in higher education. The very strength of quantitative discourse is its exploratory nature. In this study, the researcher used open ended questions in the questionnaire, interview questions, and document analysis to collect data to develop a web-based form of social learning is a social gamification functional learning online for learning online behaviors and critical thinking for undergraduate students with the assessing the effectiveness of web-based learning lesson learning styles is a gamificational social application online to promote the idea has urged for undergraduate students that material and method are followed as:

3. Research Objective

1. To develop a web-based form of undergraduates students' learning performances to their social gamification functional learning online and their enhancing behaviors toward their critical thinking abilities.
2. To assess the effectiveness of web-based learning lesson styles with the social gamification functional learning online for social applications to promote the ideas for undergraduate students.
3. To compare between students' learning behaviors of their social gamification functional online learning behaviors with computer-based learning toward their enhancing the critical thinking abilities and students' learning outcomes with the intervention learning pattern.

4. To compare the ability of critical thinking between students learning with the computer-based learning style of their social gamification functional learning online to their enhancing learning behaviors and students' learning outcomes with the intervention learning pattern.
5. To compare students, achievements between students' learning with the computer-based learning style of their social gamification functional learning online to their enhancing learning behaviors and students' learning outcomes with the intervention learning pattern.

4. Research Limitations

The scope of the research presented as;

4.1 Research Variables

The research variables revealed of the effectiveness of lessons on the Web-based, students' learning behaviors, students' critical thinking abilities, and students' learning achievements.

4.2 Duration

The duration of the data collection is from 12 July 2559 to October 31, in the first semester in the academic year 2016.

4.3 Population and Sample

Population and sample consisted of undergraduate students who were identified of an experimental model with the social package were collected of their social gamification functional learning online to their enhancing learning behaviors toward their critical thinking abilities to promote learning and critical thinking abilities.

4.3.1 Population

Undergraduate students' learning performances consisted of 782 fleshy students who registered in the first semester in academic year 2016 in Rajabhat Maha Sarakham University, Thailand.

4.3.2 Sample

To provide the sample size in two groups; the 28-experimental group students as a whole of students who sat in the computer education program, and the 28-controlling group students who sat in the technology and computer education program. Both of two groups was the fleshy students who registered in the first semester in academic

year 2016, Faculty of Education in Rajabhat Maha Sarakham University, Thailand with the purposive random sampling technique was selected.

4.4 Research Procedures

The researcher team was conducted on stages as:

4.4.1 Development of Lesson Plan

The process of creating computer-based learning package was a social news online behavior in order to promote learning and critical thinking for undergraduate students taught by mathematic for computer teachers through 9 expert evaluators, which found that the rate of nine tutorials on the web at a high level.

4.4.2 Performance Efficiency Lesson Testing

The performance testing was assessed of the lesson efficiencies into a student group who were not the control group and the experimental group students with similar educational context (Try out) prior to testing with the sample for assessing lessons learned by experts, to trial of one to one pattern which consisted of 3 students, and to trial sample consisted of 27 students in subgroup.

4.4.3 Research Procedure through Target Groups

The sample target groups were designed for undergraduate students' learning performances of their social gamification functional learning online to their enhancing learning behaviors toward their critical thinking abilities

4.5 Research Instruments

The social gamification functional learning online to the enhancing learning behaviors and the critical thinking abilities were developed in the research study composed of three research instruments, namely; the *Learning Behavior Measurement* (LBM) for undergraduate students, the *Critical Thinking Ability Measurement* (CTAM) for undergraduate students, and the *Learning Achievement Assessment* (LAA) for undergraduate students

4.6 Data Collection

The researcher team collected data by following the steps as below.

Liaison to the President, Department of Computer Science Graduate Program for permission to collect data, prepare the place for learning lessons on web development, to use the Web-based lessons developed to collect data on the experimental group, using the LBM to assess the learning behavior of the experimental group and the control group. Testing students' ability to think critically, both the experimental group

and the control group with the CTAM were compared. Testing students' learning achievements for the experimental group and the control group with the LAA were compared. Collecting data was used with the average rating learning behavior, the pre and post abilities to think critically learning, and the pre and post learning achievements were differentiated.

4.7 Data Analysis

Researchers separated the data was analyzed into two parts as below.

4.7.1 Research Instrument Quality Data Analysis

The determination of the quality of the lesson web questionnaires, expert opinions on the contents of three professionals and three technical experts was used. The validity of content was analyzed of the accuracy by the content experts [8] who checked to the purposes of the Index of item object congruence (IOC) criteria was greater than to the IOC 0.60. To analyze of the difficulty of a test item using the index of difficulty (P), the difficulty of the test will not exceed 1 [9]. To analyze of the discrimination by discriminating power (D), the classification should be higher up of 0.40 (Dankham, 2016). To analyze of the reliability of the tests, both by means of the KR-20 (Tienthong, 2011) was used.

4.7.2 Experimental Data Analysis

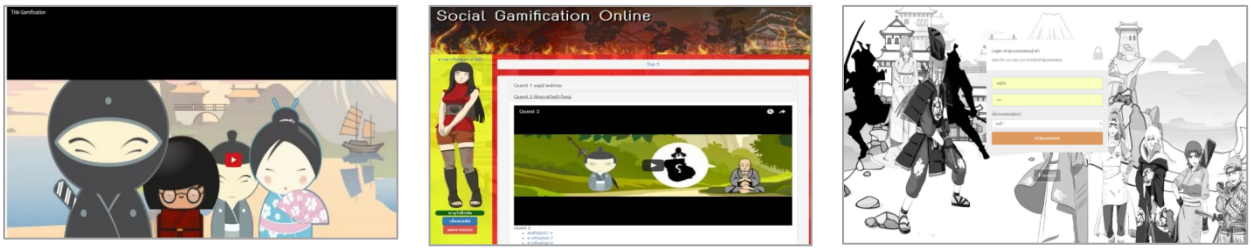
The Web-based lesson efficiency was enhanced the solving-problem abilities in cording to Meguigans criteria (Sikkabunthid, 1998) The scoring different of students' learning behaviors with the LBM, students' critical thinking abilities with the CTAM, and students' learning achievements with the LAA were analyzed between experimental and controlling groups.

5. Results

This research study was conducted by the research processing results in the implementation of the objectives of the research divided into five parts.

5.1 Results of the Developing Web-Based Learning Model

The development of web-based learning model, which was developed with the first page story conditions that require action in Figure 1(a).



a) Learners Practicing Conditions

b) The Group Mission of Learner to perform

c) Students' Registering free to their testing

Figure 1: Steps of developing the web-based learning model

Figure 1(a) describes in detail of students who will listen to a story by story to motivate the students' listening and learning conditions in prizes. They will be given after the operation, mission accomplished after students hear the story into system, completely. In Figure 1(b) shows of students registered to learn of their lessons and knowledge from the mission will be completed within the stipulated time and test different skills (see in Figure 1(b)). Students were required to take the test as measuring learning behaviors to measure of their critical thinking to their learning achievements (see in Figure 1(c)). Students were performances of their missions to their learning behaviors toward the critical thinking abilities and their learning achievements in a better way. After the evaluation by experts, it appeared that lessons on improved quality at a high level as shown in Table 1 (a).

Table 1: The Results of the Web-based Quality Evaluating (a) and Lesson Efficiency (b)

Evaluating List	$\bar{x}$	S.D.	Meaning
Content	4.36	0.63	High
Technical method	4.23	0.76	High
Average Total	4.29	0.69	High

a) Web-based Quality Evaluating Results

Testing	Total Score	$\bar{x}$	S.D.	Efficiency Value
Pre-test	80	29.33	4.45	1.06
Post-test	80	62.70	4.50	

b) Web-based Lesson Efficiency Results

The quality results of the Web-based lessons from the experts, the findings indicated that the experts' perceptions on the students' content knowledge at a high level ($\bar{x}$ = 4.36, S.D. = 0.63), and the techniques and methods evidence at a high level ($\bar{x}$ =4.23, S.D. = 0.76), mean average results included at the high level ($\bar{x}$ = 4.29, S.D. = 0.69).

Students' responses of their efficiency value to their learning lessons in developing the Web- based learning model that in cording to the Meguigans criteria which evidence of 1.06, significantly.

The measuring students' learning behaviors with computer-based learning, social learning model was the social gamification functional learning online to their enhancing learning behaviors toward their critical thinking abilities that relative to students as usual learning normal pattern (see in Table 2(a)).

Table 2: Students' Learning Behaviors and Critical Thinking Skills to the Experimental and Controlling Groups

Learning behaviors (10 Scales)	$\bar{x}$	S.D.	Meaning
Experimental group	4.10	0.52	High
Controlling group	3.31	0.48	Medium

a) Students' Learning Behaviors

Critical thinking abilities	Scoring total	$\bar{x}$	S.D.	Sig.
Experimental group	52	38.07	4.43	.000*
Controlling group	52	23.25	3.87	

b) Students' Critical Thinking Skills

Students' learning performances of their learning behaviors on ten scales, The results of the analysis in the experimental group had a median at a high level ($\bar{x}$ =4.10, S.D. = 0.52), which as revealed higher than the control group had a median level ($\bar{x}$ =3.31, S.D. = 0.48). This results indicated that learning performances of their social gamification functional learning online to their enhancing learning behaviors toward their critical thinking abilities which indicated that statistically significant between experimental and controlling student groups were revealed that at the level of 0.001, differently (see in Table 2(b)).

Table 3: Students' leaning performances of the experimental and controlling student groups

Learning Achievements	Scoring Total	$\bar{x}$	S.D.	Sig.
Experimental group	80	62.47	4.40	.000*
Controlling group	80	49.61	4.94	

In terms of the comparisons between students' learning achievements with the gamification functional learning online to their enhancing learning behaviors toward their critical thinking abilities and their learning outcomes with the intervention pattern of the experimental and controlling student groups, this result was shown in Table 3.

Table 3 reports that the comparisons of students' learning achievements between experimental group ($\bar{x}$ = 62.47, S.D = 4.40) and controlling student group ($\bar{x}$ = 49.61, S.D = 4.94) were also found of their differences that evidence at the level of 0.01, significantly.

6. Conclusions

The results of undergraduate students' performances of their learning activities with the social gamification functional learning online to their enhancing learning behaviors toward their critical thinking abilities would be reported that followed as:

The quality of learning lessons on the Web-based with the experts' perceptions found that on the content context as at a high level ($\bar{x}$ =4.36, S.D. = 0.63), the techniques and methods at a high level ($\bar{x}$ =4.23, S.D. = 0.76), and average total at a high level ($\bar{x}$ =4.29 , S.D. = 0.69).

Assessing results of the effectiveness of web-based lessons, learning styles, social package was a collection of the undergraduate students' learning performances of their social gamification functional learning online to their enhancing learning behaviors toward their critical thinking abilities were evaluated. The computer's efficiency criteria developed with the Meguigans criteria indicated that of 1.06 on to develop more lessons effectively.

Focused on students' learning behaviors on ten behavior scales in the experimental group had a median at a high level, which result was higher than the control group. suggestions that learners who learn by learning styles, social services, Phoenicians gamification functional learning online behaviors in order to promote learning and critical thinking for undergraduate students to learn better behavior on all sides.

In terms of students' critical thinking abilities, the average mean scores of critical thinking abilities in the experimental student group was higher than the controlling class group. Statistically significant was differences between pre and post-test in two groups indicated that of the level at 0.01, differently.

Finally, students' responses of their learning achievements, it was found that the accomplished experimental group and controlling group of their learning outcomes have higher achievement levels than the control group had a statistically significant level of 0.01.

7. Discussion

The experts' perceptions of the quality of lessons on the Web-based with the technical content was due to the activity-based learning of the social gamification functional learning online for enhancing learning behaviors and critical thinking abilities for undergraduate students in their learning lesson skills in various fields to their online learning, students can learn anytime, both in their classes and outside the classroom. This was consistent with Noothong (2012) who has done and reported on the

development of computer teaching network internet, technical, manufacturing, digital media, film were evaluated lessons on the web at a high level. Students can review lessons and tutorials on the web at any time up to follow the model of learning developed in line with according to Koochamphu (2015) who developed by modern web application offers a status the Ubiquitous with the Gamification function for training the organizations to communicate effectively in writing curriculum project. The evaluating result found that the quality of lessons on the Web at a high level, evidently. The processes of learning activities on the web were vital to the learning experience with the trainees, which consistent with the concept of Werbach and Hunter, (2012) who reported the structure of the game, bringing an element used to create a web-based lessons will result in learners' skills and learn playfully result in effective management on the web.

The analysis's results of the effectiveness of the lesson on the concept of metadata Meguigans criteria as 1.06 indicating that lesson on to develop more effective. The process of learning activities based on the developing model with the mechanics of the game. The students have fun learning, students can follow-up of their learning activities are very attractive, and this was consistent with Karl (2012) who reported that the mechanics of the game would give the students an emotional reaction. Students would be able to devote their activities as assigned. The learning lessons on the development of managed network and have a chat, reflecting grade with the debate about social media can be reviewed and discussed of the learning lessons through the web corresponds to Ayuchaleon (2014) who has done research on the development of teaching and learning, blended learning with a team based community practice using social media to promote the learning of undergraduate students. As a result, learners have conversations, discussions and brainstorming through social media. Students' learning lessons on the Web were developed of the samples effectively were tested, this was consistent with Sangrit (2016) who developed the web-based promotion capabilities that solve problems for programming computer analysis of the effectiveness of lessons on the concept of metadata of the Meguigans criteria as 1.11 indicating that lesson on the development of more effective learners to review content and training activities to learn anywhere and anytime with the web-based learning management.

The comparisons of students' learning behaviors between the experimental group and the control group, it was also found that students' learning performances of their behavior after learning styles at a high level. However, the interventional students indicated that of their learning behaviors as moderate level. This study can recognize the process of learning from teachers as well, students can consult at any time, teachers, to have fun learning activities and learning lessons are interesting. Students' competition and challenge were interested in the lessons and wanted to the winner who concentrated on content and learning activities. The award was given to the students

after the completion of the mission or learning achievements. Using the technology in education and in online with the modern of Amornsak (2013) who conducted the research based on causal factors of behavior in learning science. The research found that students were intended to show off their behaviors and concentration on learning while teachers conduct learning activities. Students' participating in group activities were reviewed and reflected on the results of the study. The teachers and the award given to the students during the learning activities aligned with Phitaksapaisarn (2005) who reported and conducted research of the relationships between students' learning behaviors and their using of electronic Medias of undergraduate students in the highest level, responsively. Undergraduate students have proficiency in the use of e-Learning as well as the e-Library, e-Searching, e-Communication and e-Mail. Teachers have described the using learning Medias and students' skills indicated that the media as well were used, which corresponds to Sukjairungpattana (2010) who reported of his study, students' behaviors responded with good study habits and practice exams, their work that has been at a high level. Students were ready to learn the contents of the study, which would contribute to succeed in their studies, successfully.

In terms of the comparisons of the students' critical thinking abilities between the experimental group and the control group were also found. Students who sat in the learning pattern that was developed with an average of critical thinking classes indicated that as higher than scoring mean average in the critical thinking of students studied a control group using traditional learning methods. As a form, however, students' learning performances of their social gamification functional learning online to their enhancing learning behaviors toward their critical thinking abilities in the development of a prototype web to use the learning management systems, differently. Students can review to learn all the time, motivation and enthusiasm in learning because they bring an element of the game, called a vacation package was a component in the development of the web-based lessons. As a result, students showed their excellent skills in critical thinking of a higher level. The curriculum focuses on participation; students have to interaction of their communications' consultation between their groups. Students and teachers who have had the process of learning activities were activities that encourage learners of their skills to their critical thinking abilities and reinforcement learning all the time by awarding the prize to display scores.

The ambitious and damn funnies were to make fun of learning to be consistent of Wang, Woo and Zhao (2009: 7) who reported that learning management systems by using reinforcement learning were enhanced. Students' competition challenging involved in learning and using the abilities to think critically of Cornell Critical Thinking Test Level Z, developed by Ennis and Millman (1985) with skills in critical thinking. Students' learning achievements of their posttest that a high-level critical thinking skills, according to Makmeesarp (2010) management degree using the solution

process. The research found that the critical thinking skills of undergraduate students as the style of learning that focuses on integrated solutions and learning activities that focus on creating incentives for learning and an emphasis on the participation of the students. As a result, students' critical thinking skills were higher level, interestingly.

Focused on the comparisons of student's learning achievements in two groups, students' responses in experimental group were higher achievement levels than the control group was statistically significant at the .01 level. The results show that the learning style of learning society with the social gamification functional learning online to their enhancing learning behaviors toward their critical thinking abilities. A great family vacation online behavior in order to promote learning and critical thinking for undergraduates' effective learning, since the introduction of elements such as the lessons on the web, social Medias and learning coach and students were motivated and have had more enthusiasm. As a result, students' learning achievements were higher when compared to traditional classroom learning. This was consistent with Trakulkasermsuk (2016) who has done research on application forms, playing video games in the course of the development of behavior to attendance participation and achievement of undergraduate students was a technique used by the social gamification functional learning online showed the average score of the students in the experimental group than students in the control group score as 6.03, significantly at the statistical level of 0.01 and showed that the trial scheme is effectiveness of students had the higher achievements. This was consistent with Domínguez, Navarrete, Marcos, Fernández-Sanz, Pagés, and Martínez-Herráiz (2012) who took the social gamification functional learning online to manage learning participation of learners would make the students' learning achievements of the higher learning level.

8. Suggestions

8.1 Suggestions on Bringing Research Results

In organizing learning activities that focusing on the promoting critical thinking as the students well-done of their activities to practice critical thinking skills in different situations, the students will work on their own ability to be there to adjust the time and timing to be appropriate to the event.

8.2 Suggestions to the Further Research

The further research should be taken a learning lesson on the Web, according to a form of social learning is the social gamification functional learning online to their enhancing learning behaviors toward their critical thinking abilities in other subjects, the objectives of the courses are similar. The development of Web should be developed of students'

learning behaviors, and to promote the critical thinking skills necessary to be in line with the 21st century.

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