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The Effect of Teaching with Using Flipped Classroom based on Gamification to Motivate the Student towards Self-Learning for Saudi University Students

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ABSTRACT

Purpose - The effect of teaching with using flipped classrooms based on gamification to motivate the student towards self-learning for Saudi university students was discussed.

Design/methodology/approach – 30 students from the Bachelor of Education Technology at the University of Jeddah participated in the study and were divided into two groups. CCAthe first group studied through flipped classrooms based on gamification, and the second group studied the same content using the usual methods but without the flipped classrooms based on Gamification.

Findings – the subsequent test results indicate that the participant denies the group that studied flipped classroom method based on gamification outperformed the participants who did not use that method. The study concluded that using flipped classrooms based on gamification is a useful tool for developing motivation for self-learning.

Originality/Value - According to the researcher's knowledge, no study has been conducted to examine the effect of teaching using flipped classroom based on gamification to motivate self-learning. So, this study explores the effect of flipped classrooms based on gamification, as a form of electronic learning, to develop motivation towards self-learning

Keywords: *Gamification, Flipped Classroom, Self-Learning.*

I. Introduction:

Electronic learning represents a fundamental shift in learning, and one of the modern methods that depend on a student and his or her ability to inquire information, learn skills, and knowledge. It has different terms that have the same meaning, but the common meaning is to use the computer and the Internet for learning.

The flipped classroom is considered one of the teaching strategies that have proven effective in the performance of students, providing supporting for them, and helping them outside the school compared to the traditional method (Abdulaziz, 2020; Al-Attiyah, 2018). The flipped classrooms are depending on the simple

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rule of integrating student learning with "teacher-taught learning to get pre-teaching learning (Abeysekera and Dawson, 2015; Nouri, 2016). Students in flipped classroom receive new concepts of lesson at home by preparing a teacher video, lasting 5-10 minutes, and sharing it on a website 2.0 or social media network, and other educational sites (Akçayır and Akçayır, 2018). At the time of the lecture, students attend class and are fully prepared to apply what was previously learned at home, the teacher begins to evaluate the students level at the beginning of the lecture, reviews what they have learned at home, and then presents them with a series of activities and applications to be completed in the classroom (Honor, 2020; Ali al-Din, 2019; Al-Otaibi, 2019).

The flipped classroom strategy provides a balance between direct and indirect teaching methods to give the students more confidence and motivation towards learning (Salim, 2019; Lavi, 2019).

Motivation is considered as a fundamental to success the learning process, as electronic learning via the Internet must stimulate the student individually and effectively to learn, and teachers motivate students by participating in discussions and making suggestions to them through the electronic learning system based on the Internet (Hew andLo, 2018).

Based on the above data, and in line with the Kingdom of Saudi Arabia's interest in adopting the latest modern technologies to solve educational and educational problems, there was a need to take advantage of the flipped classroom strategy in education to improve the educational environment, increase students' motivation towards self-learning and expand their knowledge.

1.1 The purpose of the study

The current study aims to recognize the impact of teaching using flipped classrooms based on gamification to motivate the students towards self-learning for Saudi university students.

1.2 Research questions

Are there statistically significant differences at the significance level ($\alpha \leq 0.05$) between the average student scores of the experimental group student, and the students of the control group in the dimensional application of the motivation scale towards self-learning?

II. Literature Review

2.1 Flipped classroom strategy

The flipped classroom strategy provides a balance between direct and indirect teaching methods so that the student can have more confidence in his ability to learn (Zainuddin and Halili, 2016).

Acquiring knowledge and understanding ideas by watching videos self-paced outside the lecture provides the student with the knowledge and information he needs to apply during the lecture and discuss it with his classmates and teachers (Ozdamli and Asiksoy, 2016). Direct lecture time is also necessary for a student to ensure that they can learn and verify that what has been gained from the information via video is accurate, correct and does not contain any ambiguity (Song and Kapur, 2017).

The flipped classroom strategy includes making the subject matter available to students at any time, or in a suitable place for the student (at his home, at the school computer lab, on a bus, even at the hospital bed) (Blair et al., 2016). Teachers can record their explanation of the lessons by video, or screen filming technology -

screen cast-, where they record their explanation of the lesson on a computer (e.g. through presentations), incorporating their voice guidance), or by directing students to a reliable online video of learning (Sheikh, 2018). Thus, students can watch the video or screen-cast at the right time, and the number of times they need it (PerioSodhan, 2019).

2.2 Motivation towards learning

Abu Hashish (2020) defines motivation as an internal state or a tendency in an organic organism- biological- physiological- or psychosocial that would provoke his tension and disturb his balance, and then move his behavior and motivate him to continue his activity in a specific direction in order to satisfy his need, or to achieve his desire and restore his balance. Rida (2020) confirms that the motivation for learning within the scope of effective training is the students' desire to learn the content of the training program. Types of learning motivation, Abbas (2020) classifies the motivation as follows:

1. Internal motivations: The Driving and directing forces to the student and Its source is within the individual, such as the students' self- desire in studying a specific topic.

2. External motives: It refers to the driving and directing forces to the student and Its source is outside the individual, meaning that students are driven by external factors outside of themselves in order to obtain reinforcement from beyond their implementation of some activities, examples of which are: rewards, academic progress, and competition.

2.3 The importance of motivation to learn:

Motivation is important in the educational process, providing motivation is a basic educational task in students' learning, because it has a positive effect on student' interest in learning, and avoiding aversion to it (Bhout et al., 2020). Motivation Raising their interest in learning topics, and encouraging them to contribute enthusiastically to the various lesson activities (Steen-Utheim and Foldnes, 2018).

The importance of educational motivation is reflected in it being an effective way to achieve educational goals (Lundin e al., 2015). It represents one of the determining factors for the student's ability to attain and achieve, because of its positive relationship with the student's tendencies (McNally et al., 2017).

III. Methods

The semi-experimental approach was used to contact the nature and objectives of the study. Two groups of students specialized in education techniques were identified in Jeddah University in Saudi Arabia randomly, one of them being the control group and the other the experimental group. The experimental and control groups have been driven toward pre-self-learning to ensure that the two groups are equal, and after the experimental treatment, the experimental and controlled groups underwent a measure of motivation for post-self-learning.

3.1 Participants and design:

The study sample consisted of (30) students from students in Bachelor of Education Technology at the University of Jeddah during the academic year 2019/2020, and they were divided into two groups, one of them: control and its number (15) students, and the other: experimental and its number (15) students.

3.2 Tests:

To achieve the objectives of the study, the Motivated Strategies for Learning Questionnaire (MSLQ) was used, which was prepared at the University of Michigan, USA. The scale statement are 81 paragraphs, distributed into two parts, and they are: motivation towards self-learning and learning strategies. The researcher has adapted the scale to suit the environment of Saudi universities.

3.3 Procedures:

The educational videos are designed to explain the unit (How to excel in the tests) in the course on study skills at the university, and the videos have been designed according to the basic concepts of multimedia, and a blog was created to publish the videos related to the explanation of the specific unit for the application.

The study variables were controlled by choosing the two groups randomly, and the researcher taught the students of the experimental group and the students of the control group, and the time period for the experimental and control groups was limited to 135 minutes, with a weekly lecture so that The lecture took 45 minutes, and there were no statistically significant differences between the two groups in the rate of inquiry.

Before the lecture, it was confirmed that the experimental group was asked to watch the educational videos. During the lecture, the students were discussed during the first ten minutes of the lecture, to clarify the perceptions, misconceptions, or incorrect, before the students practiced them or applied them incorrectly, and at the end of the lecture some activities were solved. A brainstorming strategy, and a cooperative learning strategy were applied. The students showed great enthusiasm and interaction.

The control group was taught in the traditional way, through the Power Point oral- audio-presentation, working with students on an activity, and finally identifying homework, and the motivation scale for self-learning was applied far to the experimental and control groups.

3.4 Data Analysis:

Data were descriptively analyzed using SPSS 20 software. The mean and standard deviations of the overall results of students were calculated on the Self-Learning Motivation Scale. The t-test of two independent samples was used to analyze the test scores of students in the experimental groups versus those in the control group. The ETA square value ($\eta 2$) was used to measure the effect of self-learning motivation.

IV. Results

Q1 - Are there statistically significant differences at the level of significance ($\alpha \leq 0.05$) between the mean scores of the experimental group students and the scores of the control group students in the post application of the motivation scale towards self-learning? The (T) test was used for two independent samples and the ETA square value ($\eta 2$) To determine the size of the impact on motivation towards self-learning.

Table 1

Results of (T) test for two independent samples (independent simple t-test) for differences between the mean scores of the experimental and control groups in the post-measurement of motivation towards self-learning

Dimensions	The group	The number	Arithmetic mean	Standard deviation	"t" test	The probability value
Internal motivation	Control	15	16.38	2.40	3.745	0.004
	Experimental	15	19.53	1.20		
External motivation	Control	15	14.58	2.99	5.045	0.015
	Experimental	15	19.07	1.11		
The importance of the topic	Control	15	22.66	2.96	2.243	0.005
	Experimental	15	23.92	1.62		
Arbitration of learning beliefs	Control	15	11.41	1.67	5.906	0.005
	Experimental	15	14.46	1.77		
Competence and confidence in performance	Control	15	33.16	4.10	2.974	0.045
	Experimental	15	35.61	3.70		
Test anxiety	Control	15	16.83	4.19	3.653	0.004
	Experimental	15	21.23	2.09		
The overall degree of motivation to learn	Control	**15**	**115.50**	**15.31**	**3.056**	**0.014**
	Experimental	**15**	**133.84**	**8.49**		

The Table 1 shows that there are statistically significant differences at the level of significance ($\alpha \leq 0.05$) between the experimental and control groups in the post scale of motivation towards self-learning in favor of the experimental group.

Table 2

The ETA square value and the size of the effect on motivation towards self-learning

Dimensions	The degree of freedom(df)	"T" value	ETA square value **(η2)**	Effect size
Internal motivation	23	3.745	0.38	High

External motivation	23	5.045	0.53	High
The importance of the topic	23	2.243	0.17	High
Arbitration of learning beliefs	23	5.906	0.60	High
Competence and confidence in performance	23	2.974	0.27	High
Test anxiety	23	6.653	0.36	High
The overall degree of motivation to learn	**23**	**3.056**	**0.28**	high

The table 2shows that 28% of the variation in the grades of experimental group students in the motivation towards self-learning scale is due to teaching using flipped classes based on gamification in the unit (How to excel in the tests) in the course on study skills at the university for Bachelor students in the preparatory year at Jeddah university.

V. Discussion

The results of the study hypothesis test analysis resulted in a positive effect of teaching using the flipped classroom strategy based on gamification in developing motivation towards self-learning in favor of the experimental group. This result is in agreement with the results of the study (Abeysekera& Dawson, 2015), which showed a significant positive effect of using the flipped classroom strategy in developing students' motivation through a sample of university students, whether to learn inside or outside the classroom, and this result also agreed with each of the studies (Al-Zein, 2015), and a study (Al-Jarrah, 2013). This result explains that the flipped classroom strategy based on gamification was used optimally, as it provided videos explaining the educational content to students before the lesson time, enabling students to learn from the videos at the speed that suits them and in the right place and time. The strategy has also changed the traditional classroom environment, where the educational content has been attached on the Internet and made available to all students according to their conditions, thus making the classroom a positive interaction, the activity and cooperation between students and teachers on the one hand and students on the other, which is developing their positive attitudes toward the classroom environment based on the gamification-based flipped classroom strategy and reflecting their motivation for self-learning. The strategy has also allowed the flipped classrooms based on gamification to change the relationship between the four elements of the classroom environment (physical, educational, social, and psychological), as studies indicate that the classroom environment affects the relationships and internal interaction between the elements, and the classroom environment is also affected by the prevailing pattern of education and with other elements. It also affects student trends and motivation and their perceptions towards their classroom environment, which has already occurred when using the flipped classroom strategy, and the flipped classroom strategy based on gamification, flexibility, and learn about students' needs, raising their morale, and increasing opportunities for class interaction, until it is confirmed

Students' understanding of content, which makes students receive the scientific material with greater knowledge with using student-centered teaching methods.

VI. Conclusion

The study found statistically significant differences at the level of significance ($\alpha \leq 0.05$) between the mean scores of the experimental group students and the scores of the control group students in the post application of the measure of motivation towards self-learning. Thus, the current study demonstrated the positive impact of teaching using the flipped classroom strategy based on gamification in developing the motivation towards self-learning among university students.

6.1Limitations and suggestion for future studies:

There were several limitations to the current study. First, too few participants may threaten the validity of the study results. Thus, a large sample-size study would yield stronger evidence to generalize the results. The study recommends conducting an experimental study to know the effect of teaching using the flipped classroom based on gamification for students in other variables than motivation towards self-learning, such as intelligence, critical thinking, creative thinking, and the trend towards a knowledge society.

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