The Relationship between Flipped Classrooms and Academic Achievement Motivation of the Students of Higher Educational Studies

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Abstract: The current research paper aims to design a Flipped Classroom Model (FCM) and measure its effectiveness in promoting the academic achievement motivation of the students of higher educational studies at King Abdulaziz University. The study sample consisted of (56) students enrolled in the Higher Education Studies Program at King Abdulaziz University. Aquasi-experimental design used two groups: an experimental group which used a proposed Flipped Classroom Model, and a control group which used traditional classrooms. Furthermore, an academic achievement motivation measure has been developed**.** The implementation results have revealed that Flipped Classrooms (FCs) are more effective in promoting the academic achievement motivation of the experimental group than the control group of the traditional classrooms.

Key words: Flipped Classrooms, Academic Achievement Motivation.

1. Introduction

The Flipped Classroom Model (FCM) is being viewed as one of the most recent educational trends that has attracted attention not only at the research level but also at the level related to utilizing FCM in the educational process. This is due to many insights and trends which are concerned with the positive impact of the FC variables on learners (Hu et al., 2018). FCs help teachers improve the entire teaching and learning environment. They also enhance the learners' abilities and skills as well as their motivation to learn. (Missildine, Fountain, Summers, & Gosselin, 2013; Ryan & Reid, 2015). The FCs aim to mainly enable teachers to utilize the classroom time in a more efficient way where teachers can receive feedback from learners and provide immediate support in classrooms (Lo, Lie, & Hew, 2018). This is usually done through providing brief video lectures prior to the less on time and utilizing the lesson prime time for discussion and concentrating on higher levels of thinking and knowledge (Lo & Hew, 2017).

Although there is a huge number of research and scientific studies that examine the effects of FCs on learners' learning outcomes, and most of these studies confirm the effectiveness of FC (Sergis, Sampson, & Pelliccione, 2018), Still the studies addressing utilizing FCs in higher education are almost limited. (Chen, Wang, Kinshuk, & Chen, 2014). In the context of studies that have addressed FCs, we may refer to a variety of studies, including the study of Missildine et al. (2013), which aimed to draw a comparison between FCs and only educational lectures as well as the educational lectures supplemented by a digital copy of their content. The results of the study revealed the effectiveness of FCs compared to the other methods utilized in the development of the learners' performance. The Thai, De Wever & Valcke (2017 study aimed to draw a comparison among FCs, regular classrooms and blended learning in terms of skill performance, self-efficacy, intrinsic motivation, and perceived flexibility. The results of the study showed the effectiveness of FC in comparison with other methods. The results indicated the effectiveness of FCs compared to other methods used. The study conducted by (Sergis et al., 2018) aimed to analyze three applied studies that were concerned with the application of FCs in different educational environments in light of the Self-Determination Theory. The results of the study along with the analysis process confirmed the effectiveness of FCs in terms of cognitive achievement and self- satisfaction as well as the improvement of the learner's efficiency, independence and commitment. FLCs also have an apparent role in enhancing the performance of the low educational level learners.

There is no doubt that the learners' community in the higher studies levels face challenges and situations where they need to deepen their motivational feelings that prevent any negative impact on them. This means that there is a bad need to look for reliable tools that can promote motivation among learners. A number of studies showed a positive connection between media, applications and digital platforms on one hand, and motivation and happiness on the other hand. This means that FCs can be reliedupon to enhance achievement motivation of the higher educational studies students. This is what the current research paper is trying to do through studying the relationship

between the FCs and the academic achievement motivation among the higher educational studies students.

Hence, the present study attempts to answer the following key questions:

(RQ1) What are the themes and indicators of the academic achievement motivation of the higher educational studies students?

(RQ2) What model is proposed to utilize FCs to develop academic achievement motivation of the higher educational studies students?

(RQ3) What is the effectiveness of the proposed model that utilizes Fcs in the development of the academic achievement motivation of the higher educational studies students?

The current research paper also attempts to validate the following hypothesis:

(H1). There is no statistically significant difference (due to the impact of FCs) at the level of ≥ 0.05 between the scores mean of the experimental group (using FCs) and the scores mean of the control group (using traditional classes) in the post-measurement of the academic achievement motivation measure.

Literature Review

1. Flipped Classroom Model (FCM):

FC is an educational model based on a combination of educational strategies and digital tools. It aims to optimally utilize lesson time by distributing the learning process between school and home and to enhance the effectiveness of learning situations by providing learners with active learning and shared learning as well as supporting them during the learning processes (Sergis et al., 2018). The core philosophy of the FCs is based on not spending classroom time in presenting theoretical lectures to learners, but utilizing such time in providing effective support to the learners and helping them practice advanced learning methods and strategies through practicing various attractive and entertaining activities (DeLozier & Rhodes, 2017; Zeidan, Alhalafawy, & Tawfiq, 2017; Zeidan, Alhalafawy, Tawfiq, & Abdelhameed, 2015). The philosophy also believes in giving the students a chance to apply what they have learned on their own and utilize higher thinking skills rather just receiving information directly from the teacher. (Lai & Hwang, 2016). FCs rely heavily on supporting the home study processes through broadcasting educational materials ahead of the class period so that the students can study them at home or in any other context outside the educational organization, and then sparing the class period time for more advanced levels of interaction on the educational content. (Şengel, 2016).

The Fcs learning design is based on two basic phases that can be displayed as follows:

1. **Out-of-classroom learning**: pre-attendance learning is an integral part of the overall learning process. It is important to keep in mind that the information broadcast prior to the class period time should not be repeated during the class period, but a brief summary of this information can be provided at the beginning of the period (He, Holton, Farkas, & Warschauer, 2016)

2. **In-classroom learning**: in-classroom learning is a mandatory process to complete the FC cycle. It aims to present in-depth interpretation of knowledge and practice, as well as participation in knowledge production, enhancement of the understanding process, and reliance on active learning techniques (He et al., 2016).

A number of digital video platforms have recently begun to arise on the web allowing classrooms to provide the teacher with a variety of tools that enable him to control displaying the videos. The platforms also provide some interactive features-that were not available years ago-with video applications available across the networks. Amongst the tools that the digital video platforms provided was video segmentation, as well as the likelihood of adding a number of questions within the videos (Kleftodimos & Evangelidis, 2016; Rabidoux & Rottmann, 2018; Shelton, Warren, & Archambault, 2016)

2. Academic Achievement Motivation

The achievement motivation means that the learner is keen to perform difficult tasks, enjoy the learning process, keep abreast of all that is new, and love of perseverance (Gottfried, 2019). Motivation plays a vital role in guiding the activities and practices of both the individual and group, particularly, in the educational field. Motivation is also viewed as a significant aspect of the humanitarian motivation system which is accountable for driving the human behavior in education in general and academic achievement in particular. (Zichermann & Cunningham, 2011). The "motivation" term refers to a set of internal and external circumstances that drive the individual to restore the equilibrium that has been disrupted. Motivation, as being understood this way, refers to the learner's tendency to achieve a certain goal, which might include meeting internal needs or desires (Otani, 2019). If an individual is motivated to learn, he is willing to take responsibility, to struggle for excellence, to insist on overcoming obstacles, to feel the significance of time, and to plan for the future. (Lazarides, Dietrich, & Taskinen, 2019). It should also be emphasized that if motivation is a means of achieving educational goals, it is one of the most important factors that help acquire knowledge, understanding and expertise. (Józsa & Barrett, 2018).

After reviewing a number of literature resources on motivation, the researcher perceives that

"motivation to learn" is based on the following themes: (Akdemir & Arslan, 2013; Gottfried, 2019; Kim, Brady, & Wolters, 2018; Senkbeil, 2018; Vallerand et al., 1992)

1. Sense of responsibility: it means that the learner is fully committed and serious when he performs certain tasks, applications or academic duties and he is ready to exert more efforts and attention to achieve that.

2. Perseverance: it means that the learner is able to continue to perform the work, duties and applications related to his field of study, no matter the surrounding problems are, with the likelihood to sacrifice some life-related matters.

3. Level of aspiration: it means that the learner exerts efforts to get the highest academic rates and he is willing to review many learning resources. He is also constantly seeking to improve his performance, and herises to the challenges toper form demanding educational tasks.

4. Being aware of time value: it means that the learner is aware of the value of time, and is keen to do his educational duties and assignments on time.

5. Enjoying learning practices: it means the learner has a sense of gratification and satisfaction with the learning practices, duties and applications, without waiting for financial or recognition incentives.

6. Planning for the future: it means that the learner is able to explore the future, and plan well in light of identifying prospective problems and do his best to prevent such problems from happening.

Theoretical Framework

Utilizing FCs in the learning environment is associated with and supported by Motivation Theory (MT), particularly, in the part that is related to the extrinsic motivation, which represents the extrinsic incentives that can compensate for the difference between the internal incentives and the learner's real level. The learner may have an internal desire to excel,

but his scientific and cognitive capabilities don't help him to do that. In this case, FCs have a significant role in motivating the learner to reach the desired level. (Zichermann & Cunningham, 2011).

Flow Theory (FT) is one of the theories that support the use of FCs although it is highly concerned with internal drivers as a basis for the flow state; however, the existence of some digital video platforms, where FCs are presented through, may have a good role in promoting motivation and sustainability as they control the learning process which helps to monit or the flow processes to reach the desired goal (Groh, 2012; Nakamura & Csikszentmihalyi, 2009).

Constructivism Theory is one of the significant theories utilized in the FCs design. Learning-according to constructivism- is the process that supports knowledge-building rather than accessing knowledge. Learning is a meaningful process that varies from one person to another depending on the nature of the interaction between the person and the learning environment. Hence, the more the learner interacts with the classroom environment, the better and more dynamic the learning process becomes (Serafín, Dostál, & Havelka, 2015). Consequently, FCs come as one of the state-of-the-art approaches that can be relied upon to create a meaningful learning environment that supports learners and help them in the learning process through two phases inside and outside the educational organization.

2. Methods
1- Design

The researcher used a design of two groups: an experimental group and a control group. The experimental group used the developed Flipped Classroom system, while the control one used the traditional classrooms. Table 1 shows the research quasi-experimental design.

Table (1): Research Experimental Design

Research Groups	Independent Variables	Dependent Variable
Experimental Group	Flipped Classrooms System	Academic Achievement Motivation
Control Group	Traditional Classrooms	

As shown in the above table, the independent variables of the current research are based on the flipped classrooms and traditional classrooms, while the dependent variable is based on the academic achievement motivation.

2. Sample

The study sample consisted of (56) students who were studying a course entitled "Educational Technology and Learning Resources" as part of the

General Diploma Program in Education at King Abdulaziz University during the academic year 2016/2017. The sample was defined in two phases. In the first phase, the sample individuals were chosen deliberately based on two criteria: The first is a technological criterion where the sample individuals have mobile phones that can receive the Flipped Classrooms broadcast, while the second criterion was based on the consent of the sample individuals to join

the research experiment. In the second phase, the sample individuals were randomly distributed by 28 students per group.

3. Measures

The learning motivation in this research is linked to the motivation indicators that result from learning through mobile adaptive support. To develop a learning motivation measure for the current research, a number of different learning motivation measures have been reviewed as follows: Akdemir & Arslan, 2013; Gottfried, 2019; Kim et al., 2018; Martin, 2001; Schreglmann, 2018; Senkbeil, 2018; Vallerand et al., 1992. In addition to the nature of learning through mobile adaptive support applications, and the nature of higher studies students in the current research, the motivation measure has been developed through Flipped Classrooms. The measure included (6) basic themes: (1) sense of responsibility, (2) perseverance, (3) level of aspiration, (4) being aware of time value (5) enjoying learning practices, (6) planning for the future. Each theme has 4 vocabulary items: 2 positive ones and 2 negative ones. The measure was passed over to a group of reviewers to verify its validity and ensure that it fits the students of the higher educational studies. The students were asked to evaluate each vocabulary item based on the 5- point Liker scale (strongly agree, agree, neutral, disagree, strongly disagree) Scores are given (from 1= strongly disagree to 5= strongly agree) (Cronbach's α= 0.81)

4. Procedure

The current research procedure has been implemented in line with the (5) basic phases of the educational design as follows:

(A) The analysis phase: in this phase, the educational tasks that will be implemented in the FCs were analyzed. The current research is based on the tasks and activities of the educational content in the course entitled "Educational Technology and Learning Resources" as part of the General Diploma Program in Education. Four educational tasks related to the research and theoretical study of educational technology updates were defined. Moreover, **the learners' characteriatics** associated with the use of digital video platforms **were analyzed**. 93% of the students use mobile devices to access the Internet. 90.22% of these student susedigital video platforms. By applying the academic achievement motivation measure, the researcher found a drastic drop in the achievement motivation indicators in the research sample.

(B) Design phase: Through this phase, the FCM was designed according to the following:

1 - Designing Educational Objectives: the educational objectives of the current research were linked to the course of "Educational Technology and Learning Resources", especially the unit of educational technology updates. The objectives were based on the development of the academic achievement motivation through using FCM.

2. Defining the basic features of the FC system: The FC system has been designed to take into account the following:

- Editing video clips: the design process begins by defining video clips and uploading them to the platform account, and then processing these clips in line with the features defined by the Edpuzzle platform.

- Activating voice notes feature: the feature of voice notes has been activated so that the researcher can add some important voice notes related to the content of the learning subjects.

- Activating short questions feature: the short questions (quizzes) feature has been activated and included within the video. A screen saver was added containing a set of short questions (multiple choice) about the scientific material presented.

- Setting a time limit for watching the video: using the Due tool, 3 days have been allocated for each video so that the broadcast starts before the class period begins and ends on the day allocated for the class period.

- Preventing skipping any part of the video before watching it completely: skipping prevention option has been activated to prevent skipping any part of the video before watching it completely.

- Designing a list ofvideo clips titles: A list of video titles has been developed to facilitate sharing it with students.

- Preparing progress list: the main points of the progress list were reviewed so that the number of views per student could be identified, and the last time the clip was viewed. The teacher would benefit from these statistics in providing feedback to the learner.

- Activating e- communication tools: students can ask questions or queries about the content of the video clips and the teacher can answer them before the lesson begins.

3. Designing the in-classroom learning processes

The in-classroom learning processes have been designed as follows:

- Designing brief reviews: brief reviews of each learning subject were designed for the content which was broadcast outside the classrooms, emphasizing the basic elements of the learning subjects.

- Designing learning groups: learning groups, (3-4) students each, have been designed inside classrooms.

- Designing learning strategies: active learning strategies, project-based learning, shared learning, problem solving and collaborative learning have been designed to implement all learning tasks that were

carried out inside the classrooms. Each learning situation is based on the use of these learning strategies interchangeably.

C) Development phase: In this phase, the overall structure of FC was produced through the video platform. Also, all required digital video clips have been produced; in addition, certain tools within the platform, such as voice notes and questions, have been activated.

**D) Implementation phase*:* in this phase, the pre-application of the academic achievement motivation measure has been implemented. The learning process was then launched and tasks as well as educational strategies were implemented across the platform. Then, the final post- application of the academic achievement motivation measure was implemented.

3. Results

1. Academic Achievement Motivation Measure through FCs

The academic achievement motivation measure included 6 different themes: (1) sense of responsibility, (2) perseverance, (3) level of aspiration, (4) being aware of time value (5) enjoying learning practices, (6) planning for the future. Each theme has 4 vocabulary items: 2 positive ones and 2 negative ones.

The measure consisted of36vocabulary items in total where they were distributed to6themes, 6 vocabulary items each.

2- Proposed FCs Model

The proposed FCs Model has been developed in line with the research procedure. The model included two learning phases: the first was outside classrooms and the second was inside classrooms. The proposed model was based on the Edpuzzle platform where the following items have been activated: voice notes, short questions feature, time limit for watching the video clip using the Due tool, preventing skipping by activating the "prevent skipping" option, designing the list of video clips titles, preparing the progress list, and activating the e- communication tools.

3. The Results related to the effectiveness of FCM in the development of the Academic Achievement Motivation

To validate the first hypothesis related to the comparison between the experimental group that used FCM and the control group that used the traditional classrooms for measuring the academic achievement motivation, the t-test was used to identify the significant statistical differences between the control group and the experimental group. Table (1) shows the t-test results of the individuals of both the experimental group and the control group.

Table (2) Arithmetic mean, standard deviation and the value of "t" for the scores means of the two groups

Group	n	Mean	SD	t	df	sig
Experimental (FCM)	28	153.71	1.42	39.33	54	0.000
Control (Traditional Classrooms)	28	110.13	2.22			

As shown in the above table, there are statistically significant differences between the experimental group using FCs and the control group using traditional classrooms. Therefore, the hypothesis can be modified to be: "There is a statistically significant difference at the level of ≥ 0.05 between the scores mean of the experimental group (which used FCM) and that of the control group (which used the traditional classrooms) in the post-measurement of the academic achievement motivation; due to the impact of Flipped Classrooms.

4. Discussion

These findings, which show the effectiveness of the FCs in the development of the academic achievement motivation, may be attributed to the fact that the FCs enabled the learner to have controlover the educational situations which became more flexible, responsive to his needs, and taking into account his characteristics. This helped the learner to beconstantly active searching for information, which in turn made

him responsible for his own learning and thus it was reflected on his motivation to learn. Because the digital video platforms provide tools that allow the learner to control the content displayed, they have contributed to the high motivation of the learner and raised his interest in the learning processes, as well as being sure of achieving his success sex pectations, which contributed significantly to the development of his motivation to learn. The findings of the current study are consistent with the literature that showed the learner's control over the educational situation, and being constantly active, as well as being aware of his success as he progresses, and the relevance of the environment to its needs. This was reflected on the learner's high rates of achievement. Also, there is a correlation between the achievement and the learning motivation. i.e. the higher the achievement is, the higher the motivation to learn becomes. (Lin, Yen, & Wang, 2018; Zhang & Liu, 2019)

Furthermore, the digital video platform provided tools such as voice notes, short questions feature, Due

tool, prevent skipping option, and video segmentation within the platform. These tools helped the learner to control the learning environment, and this provided him with different types of alerts about his progress within the FC system, which contributed significantly to the development of his academic achievement motivation.

These findings can be explained in the context of the Motivation Theory, which indicates that the learner's involvement into the learning process through the FCs is attributed to the flexibility of the FCs in terms of interaction with the learners, and this made the learning process more enjoyable. This also was reflected on the learner's self-motivation, which increases whenever the personal learning enjoyment rises. Moreover, the participation of the learner with his peers in the FCs led to the development of the second component of motivation, which includes the component based on community commitment, where the learner tries to participate in supporting his peers within the learning community and perform his commitments towards this society.

These findings are also consistent with the constructivist theory, which aims to create a kind of social interaction among learners and to constantly show the changes occurring in the learning community. This scales up the learner's motivation, which can be achieved through the content presented through the FCs, where their cognitive gaps were filled in a framework of individual and social interactions that took into account their cognitive characteristics. According to Vygotsky's theory of social learning, the learner acquires knowledge well when he's given prompts, hints, or guiding information rather than leaving him alone to explore and learn new concepts and knowledge on his own. This explains the growing rates of motivation among the research sample individuals through the FCs system.

Conclusion

The current research paper is one of the papers that focused on the of FC structure and its role in enhancing the academic achievement motivation among the students of higher educational studies. The research showed that FCs are better than the traditional classrooms in terms of enhancing the academic achievement motivation. The researcher views that the future researches related to utilization of FCs across e-learning environments may be more oriented towards studying the design elements of digital video platforms, the great numbers of digital video clips within the FCs platforms, as well as building a clear relationship between the components of the platform and classroom educational activities. Additionally, the study of motivation and gamification

processes across the FC platforms is really important. The researcher also thinks that it is necessary to have a new research approach that aims to establish a clear framework for utilizing the FCs in the education of people with special needs such as the deaf. He also suggests linking the FCs to the augmented reality through the research ideas that could be studied**.**

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