World Journal on Educational Technology: Current Issues

Volume 09, Issue 3, (2017) 144-157

www.wj-et.eu

The effect of Flipped Classroom Strategy using Blackboard Mash-Up Tools in enhancing achievement and Self–Regulated Learning skills of university students

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Suggested Citation

El-Senousy, H. & Alquda, J. (2017). The effect of Flipped Classroom Strategy using Blackboard Mash-Up Tools in enhancing achievement and Self–Regulated Learning skills of university students. *World Journal on Educational Technology: Current Issues. 9*(3), 144-157

Received February 27, 2017; revised May 10, 2017; accepted July 5, 2017

Selection and peer review under responsibility of Assoc. Prof. Dr. Fezile Ozdamli, Near East University.

Abstract

The flipped classroom strategy (FCRS) is an innovative instructional approach that flips the traditional teacher-centered classroom into student-centered learning, by switching the classroom and home activities using the available educational technology. This paper examined the effect of (FCRS) on students' achievement and self-regulated learning skills (SRLS) for 60 students enrolled in Comp101N course. The findings revealed a significant difference in both the mean of achievement test scores and SRLS scale of experimental group students and control group students in favor of the experimental group. A similar difference was found in the pre- and post-test achievement scores of experimental group students in favor of the post-test. The study recommended wider use of the FCRS in higher education and for post-graduate students.

ABBREVIATIONS: Flipped Classroom (FCR) - Flipped Classroom strategy (FCRS) - Self– Regulated learning (SRL) - Self– Regulated learning skills (SRLSs).

Keywords: Flipped Classroom strategy - Blackboard Mashup tools- achievement, self-regulated learning skills.

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1. Introduction

Nowadays we live in the age of explosion of information and communication technology, which make it difficult to gather or refuge all information during the lecture time or even formal education time as well, so it is logic to think about methods to accommodate the explosion of information and save the time for applications, practicing, Problem solving, group working, social and thinking skills…ect, One of the suitable methods to achieve that goal is "flipped classroom FCR", which makes the overlap between the school time and home time, to maximize the benefits from each, more over transfer the students from the conceptual level to practicing and evaluation level. That method became much more important in the action in many applications, as it stated in the Flipped Learning Network (2012) observed rising of the number of members on FLN- social media site from 2500 teachers to 9000 teachers in one year 2011/ 2012 (Ibrahim & Callaway, 2014).

As advanced technology progressively infiltrated into the classroom, the "FCR" takes more attention in education settings. The FCR is a new approach in instruction that designed to flip the traditional learning classroom from Teacher-centered into Student-centered (Chen, 2016). FCR approach has four different elements: "FLIP" ("F"lexible Environment), It refers to facility of place, time and of learning. ("L"earning Philosophy), overlapping from teacher-centered teaching into student-centered learning. ("I"ntentional Content): The educators manage media to develop a cognitive understanding of students and provide fluency education. ("P"rofessional Educator): The educators always give more attention to engage students in course learning, evaluate and feedback them than the traditional approach (FLN, 2014).

The traditional classroom teacher still applies the concept "I Do", "We Do", and "You Do" as a teaching strategy, while FCR teacher flips it into "You Do", "We Do", and "I Do". Students prepare lesson by watching videos, PowerPoint's, and further readings at home. As students arrive in class, they are ready to solve problems, analyze text, or investigate the results, inquiry, homework, and investigation as well achieved in the class. The FCR is fairly new in the teaching field as a strategy teaching. It has a variety ways to be applied in the classroom, and teachers used it from elementary to graduate school (Schmidt & Ralph, 2016).

FCR approach differs from other concepts: as the important aspect in FCR is the interactive activities achieved during learning time, so it is not online education; as teacher and students are face to face. It is not also using videos instead of teacher. Either it is not working unsystematically with students. It is not students spending all course period in front of a computer. And it is not a student studying alone (Ozdamli & Asiksoy, 2016).

Some educators describe the FCR in a wider definition; Mull (2012) expresses it as an approach that enable students by watching videos, listening podcasts and reading articles to prepare themselves for the lesson. some think that watching video's or reading outside the classroom and doing discussions in classroom forming the FCR, Sams and Bergmann, (2014) described it as what is done in class done at home, assignments done at home done in class", Maher and Lipford (2015) revised the concept and stated, Not only FCR so that instruction occurred out classroom and student activities occurred in classroom time, also flipped the sequence of learning concepts that students do: first engaging that students with online media and then practicing learning activities skills in class to develop the students' understanding of the concepts and developing skills as well, Milman (2012) went more advanced and saw it as approach make the lessons effective by transferring knowledge via videos and podcasts as by discussions, group works and applications to students. While Bishop and Verleger (2013) reject the definition and define the "Flipped Classroom Strategy FCRS" as "an educational technique that contains two parts: interactive group learning activities inside classrooms, and direct computer-based individual learning outside classrooms" and that view combine of constructivism and behaviorism learning theories.

Those views reach the benefits of both individual and interactive group activities, with maximizing the active learning time by using effective abilities of technology; and that adequate with the constructivism theory, where the core idea of constructional learning is the learner-centered learning environment, through understanding and building knowledge socially; learning environments supported by technology integrated learning such as Flipped learning provided great opportunities for the application of constructional learning by individual and social knowledge building (Strayer, 2012, Haroun & Sarhaan, 2015; Metwalli, 2015).

Primarily FCRS began by reviewing and selecting a high-quality of online videos for each topic in the course, designing the course according to the goals of the curriculum, and merging the online instruction at appropriate times in the semester. Students how spend great time watching videos and multimedia, largely desired FCRS as enjoyable learning experience (Maher et. al., 2015). Then the students require the flexibility to access course materials, with several mobile devices at a proper time for them (Talley& Scherer, 2013). Additionally the FCRS require changing from various extensive assignments homework to shorter, more various assignments in the lessons, wherever the major task can be achieved during the class time, and that likewise was preferred by the learners (Gannod & Helmick, 2008).

Otherwise Vaughan (2014) stated that, FCRS enable educators to incorporate effective of technology' abilities in their classes, to stimulate an active cooperative context, that improves learner engagement, promote self-learning, and increase student-teacher feedback (Clark, 2014). The roll of technology not only in using variety media but variety tools as well, students can watch/ interact to records of course lectures on own laptops, smart phones, tablets, or own media players outside the classroom, saving classroom time for the involving in learning activities and homework doing (Frydenberg, 2013), whenever it is essential to ensure that learners observed the selected videos or accomplished the additional reading at home, and in class exercises, to report their progress as they work, students could respond to "clicker questions" or other technology assessment applications (Houston& Lin, 2012).

Moreover teacher may send conceptual electronic Quiz about the new lesson, which helps teacher to identify the level of, weaknesses, strengths of students' understanding. And ensures "Chapter inverted" throw decision or classroom activities, which designed to manage the understanding difficulties, and provide support proper for weak students, and thus be learned and high achieved among all levels of students, to reach the individually variance (Al Shamsi, 2013). That may not happen in a traditional class, as the teacher explains the whole class students with one way, and have not enough time to diagnose or heal the understanding weakness. So it could be concluded that FCR takes the advantages of both Direct and Electronic education, as (Strayer, 2012) showed it as a special type of blended learning.

The current study intends to use Blackboard as media to establish FCR, and benefit the advantages of blended Learning, since Blackboard is mostly merged into hybrid courses. The benefits of hyper obtainability, access to course anywhere and anytime, better communication, better following, fast feedback, and skill enhancing are appropriate to support classroom instruction in blended courses, Blackboard also allows instant access to students and student-generated data, to obtain a huge Open-source software and other tools, such as mashups.

Blackboard platforms are virtual learning environment and course management system, works to improve every part of the education experience that help students learning. Simplify online changes in every course with a simple, controlled, and full Blended learning environment. It removes all barriers to learning, engaging, privacy, flexibility. With Blackboard teachers can improve and follow student learning and achievements. Whereas Mashup allows teachers to merge the online multimedia into courses with various ways, as a part of the data for students to view and interact with. "Blackboard-Learn" supports adding Mashup sources as: Flickr to add images, Slide-share to add PowerPoint presentations, Adobe PDF Portfolios, or Word documents, and YouTube to add online videos (Baker, 2000; Davis, 2009; Kuykendall, 2012; NIU, 2015; Bradford, Porciello, Balkon & Backus 2007).

Whereas The FCRS allows the using of online identical learning videos, recorded lectures or readings, that save the class time for practicing on exercises or applications through active groups based on problem answering activities (Ibrahim& Callaway, 2014). The actual benefits of FCR are the transfer the knowledge of the Factual phase to Procedural phase of basic conceptual material throw video lectures, and doing homework, which students are responsible for before attending the direct lecture, which then organizes for combined problem solving, questions and arranged discussion of issues which require more in-depth activities (Redekopp & Ragusa, 2013). Educationally, it appears that FCRS Transfer the cognitive learning according to Bloom Taxonomy from the "recalling" and "understanding" levels individually at home to reach the "applying", "analyzing", "evaluating" and creating" levels in the class assembly in active work guided by the teacher. Therefore FCRS follows the new trends in education by attaining interactive learning activities, which promote individual and group practicing beside with instant feedback.

FCRS provides several pedagogical advantages in emotional domains as well, the results of Toto& Nguyen (2009) study showed learner pleasure with the FCRS as it relates to their learning styles. Additionally, applying FCRS increase the extent of inspiration, and improve academic performance as well compared with the traditional strategies; it also increases in retention and engagement, which also

improve performance in exams (Likewise& Scherer 2013). And there are positive attitudes among bachelor students toward applying FCR in instruction at KSU (Alduraibi, 2016). Moreover the Shyu (2014) study indicated that in-service students were gratified with FCRS and has a positive attitude toward instruction than the traditional group, those domains essential for personal and behavioral aspects of the student, who spend amassed time in the open space and social media compared to traditional learning. Ali(2015) found that the facilities of FCRS more than any limitation where it applied in appropriate cases.

From student views, they and appreciated impact of FCRS, not only using of the videos are useful, but also the real advantage is increasing the problem solving and performing of skills. Also increasing the abstract and factual knowledge students gain, and enlarging time spent for active-learning that help students to achieve higher-order learning aims, and expand performance for the course tasks (Redekopp & Ragusa, 2013). That process allows students to reach a researcher and user of the technology effectively by learning outside the classroom, for enhancing critical thinking and self-learning, using communication skills and cooperation among students, to achieve atheist century skills in education (Thuwaikh, 2014).

Many studies applied FCRS in many subjects and stages, however, before or during the lesson and comparing it with traditional methods, Talley & Scherer, (2013) documented an increase in students' academic performance within the FCR. In addition, Davies, Dean and Ball (2013) compared FCRS with traditional introductory in ICT course on the spreadsheet skills and found the FCRS more effective and the students demonstrated higher. And that is needed nowadays to encourage students to learn in groups and individually. Likewise the study of Haroun& Sarhaan, (2015) stated positive effect of flipped learning model on Achievement and skills performance in E-Learning. It is shown from various studies that FCRS increase the students' academic performance, so proposed the current study to use FCRS to improve the students' achievement.

Although FCRS has many benefits, its application is not Overall has Positive results, it has some limitations. Though Johnson & Renner (2012) supposed that learners in the FCR could be extra effective due to switching the time of classroom spent in lower-level practicing into interactive group work, the learners didn't totally embrace the FCR opportunities. The failed effort at the FCRS is what affected those changed outcomes, beside the involvement itself. Also the students in medical and technical branches were not sure about the essence of FCR (Juhary, 2015). In addition, she (2014) found no significant difference was found in the achievement test. Also Blair, Maharaj and Primu (2016) found the FCRS led to a small progress in students perceive the course, and not found any significant variation in performance on cohort exam, fewer learners in FCR reached higher level grades. While the lecturer's perspectives show approval to continue with FCRS; as it let them more time to work with students individually, however it still big effort for teachers (Herreid & Schiller, 2013; Akdemir, Bicer & Parmaksiz, 2015).

Researchers posited that students at open-admission institutes join university with a variable extent of educational abilities, where they are requested to take advanced courses to raise their academic skills to be fit for higher education. Additionally, few learners' own self-regulated Learning Skills "SRLSs" to help their learning. When modeling, scaffolding and FCR methods are used to implement SRL students' at-risk academically benefit from SRLSs, which joined with an active learning environment. That study compared several forms of FCR in a general chemistry course, where high school class students have significant various rank and math assignment level. The results showed that students proceeding in the top third, middle third, and bottom third increased their overall course ranks with FCR using self-regulated tools by 7%, 3%, and 6%, respectively (Butzler, 2016).

Clearly self-regulated Learning "SRL" considers much more important for independent student to generate self-learning, especially in higher education, According to Zimmerman (1995), SRLSs do not arise naturally as learner raises, self-regulatory processes are teachable; learner needs an attractive context for engaging in improving self -regulated skills and support self-learning. Whereas it is vital to create awareness of the SRL to support low achievers' students by improving SRLSs, which is explained by the study of (Geduld, 2016) as the study' readiness of Open distance learners vary in higher education, learners with low self-regulated risk failure, moderate to minor effect degrees were appeared. Also, students with lower achieving abilities regarded their SRLSs more than high achieving abilities; while high achieving abilities are more SRLSs (Aoki, 2012; AlJarrah, 2010).

According to "Purdie" SRL has four sub skills: First "goal setting/ planning", it is the student's ability to set general and specific goals, plan them according to a time schedule, and carry out activities related to achieving those goals. Second "Keeping Records/ Monitoring" is holding of records and the ability of monitoring the activities carried out to achieve the goals and record the findings. The third "Rehearsing/

Memorizing" is the ability to recall and the preservation of the data by means of its heard or silent vocal. And the fourth "Seeking Social Assistance" is the request for social assistance to a family member; teacher or colleague to obtain help in understanding the educational material or perform the duties (Zimmerman, 1990; Zimmerman1995; Ahmed, 2007). Furthermore Self-regulated students are conscious of their own learning abilities, and active in learning. They found learning as a manageable progression and assent extra responsibility for the learning progression outcomes (Nguyen& Ikeda, 2015). A self-regulated learner could effectively and independently plan for learning, select/ use suitable learning approaches and reflect/ monitor learning growth. SRL is inevitable in the effective learning process (Ambreen et al., 2016).

While SRL considered as a vital component of students' academic achievement and effective learning. The studies exhibited a positive relationship between SRLSs and the causal knowledge; between personal control and stability; between marks of planning strategy using/assessment and total marks SRLS; additionally between sub-scales of SRLS and academic achievement. Though, it showed that the planning sub - element was only indicator for the educational achievement (Leana-Tascilar, 2016). The study of Ozdemir and Arslan, (2016) indicated that students' academic achievement increased significantly by the effect of self-regulated jigsaw IV compared to traditional method; though attitudes towards English not significantly increased. However, students can benefit SRLSs in other independent educations. Many studies have shown a positive relationship between achievement and self-regulation (Pintrich & DeGroot, 1990; Schunk & Ertmer, 1999; Sui-Chu, 2004; Nota et al., 2004; Judd, 2005; Anderton, 2006; Bembenutty, 2006; Klassen et al., 2007; Bail et، al., 2008; Hong et al., 2009; according to AlJarrah, 2010).

Furthermore Cakir, Korkmaz, Bacanak and Arslan (2016) explored the relationship of students' SRLSs with their performances for formative feedback. It found that, although students from different SRL capabilities; either low, average or high, frequently preferred formative feedback, those have high SRLSs depend infrequently on formative feedback than students who have lower SRLSs. That enables educators to enhance students' SRLSs that are an essential ability in a lifelong learning era, and students' career. Similarly; Prayekti (2015) compared the professional capability and SRL for the students of science field with regular students, the results showed that SRL as a factor gave significant effect for professional capability score. Mainly Nguyen and Ikeda, (2015) indicated that E-Portfolio and other modern learning models had positive effects on students' SRLSs; and their basic skills: goal orientation, metacognitive self-regulation, effort regulation, explanation, practice, and critical thinking, which improved after implication of E-Portfolio-based learning model in lessons. Therefore the current study holds Blackboard Mashup tools to apply FCR to improve students' SRLSs.

Lastly survey the trends of FCR research on 20 papers that attained FCR from 2013-2015. The results found that FCRS applied in various fields, and some technology tools were applied as the online platform. Moreover FCR indicated confident effects toward students' learning activities as; achievement, engagement, motivation, and interaction. Whereas, some challenges need more attention, as the FCR applicable for the less quality of video lectures, and untrained teachers; FCRS has been recommended as a modern approach for higher education (Zainuddin& Halili, 2016).

The whole time of traditional lectures is spent in teaching the concepts without practicing or evaluation and students forced to do homework; absence students who cannot understand the lesson; it is big problem, moreover the traditional lectures may seem boring to the technical 21st century students, while the online lectures give no guarantee to engage students in learning fulltime, However as evolution in knowledge and communication technology occurred, our daily life and Education also keep ups with it, and continued to advance modern learning methods. A review of literature indicated that the FCRS considers as innovative method that enhance several learning outcomes; thus the author supposed FCRS to be a rationale for this study, which aims to focus more attention, and examine FCRS' effect in improving achievement and SRLSs, whether FCRS does not yet has the desired attention from the previous Arabic studies, as well as the SRLSs, the majority of the previous Arabic studies have just focused on assessing students level of SRLSs, not the process of improving SRLSs by instructional strategies. Hence other studies recommended applying this study.

Subsequently the question of the study defined as: what the Effect of Flipped Classroom strategy FCRS using Blackboard Mashup tools in enhancing achievement and Self– Regulated learning skills SRLSs of university students?

1.1. The Objectives- the study aims to assess:

- The effect of FCRS in enhancing achievement.
- The effect of FCR in enhancing SRLSs.

1.2. The Hypotheses:

1.2. 1. There is a statistically significant difference between the scores of students in the control group and in the experimental group in achievement test in the favor of scores in the experimental group.

1.2. 2. There is a statistically significant difference between the scores of students in the experimental group Pretest and posttest of achievement test in the favor of the posttest scores.

1.2. 3. There is a statistically significant difference between the scores of students in the control group and in the experimental groups in SRLSs scale in the favor of scores in the experimental group.

1.2.4. There is a statistically significant difference between the scores of students in the experimental group Pretest and posttest of SRLSs scale in the favor of the posttest scores.

1.3. The Significance:

1.3.1. Track FCR as an innovative approach in education that proper for 21st century students.

1.3.2. The applications of FCRS may attract the Arab educators' attention to applied studies.

1.3.3. Mashups may be interested for teachers to plan, design, develop, and use in courses.

1.3. 4. The Blackboard tools may attract the desired concern of UOD University in learning.

1.3.5 Assessment tools "achievement test and SRLSs scale" may be useful for researchers.

2. Materials And Methods

2.1.*Design approach:* semi-experimental method was used and two groups design, experimental group taught with the FCRS and control group taught with the traditional way, and pre and post application of the assessment tools for both groups.

2.2. The Tools:

2.2.1. Treatment tools:

- Several Blackboard Mashup tools**;** such as YouTube, Flickr, Slide Share…etc. To fit the content of each lesson, all of them chosen very carefully according to the FCRS standardize.

- Several working papers have been prepared with several tasks, which students should achieve during the class time. The papers contain solving problem, interactive learning, and group discussion, to assess the lessons learning according to the FCRS standards.

- The Both tolls shown to 5 experts. And the needed changes have been done, to reach the final form Appendix (1).

2.2.2. Assessment tools:

2.2.2.1. Achievement test: consists of 15 statements, in the form of multiple choices and true& false, the true response takes 1, and the false takes 0, in total (15) marks.

- The test's content validity measured by experts' opinions and the test's Reliability calculated by Cronbach's alpha = 0.85 and Pearson's correlation = 0.91:

2.2.2.2. SRLSs scale: including 4 sub-skills: "goal setting and planning", "Keeping Records and Monitoring",

"Rehearsing and memorizing", and "Seeking Social Assistance". Consists of 38 statements in Three-Points Likert scale, respondents' rate range from: (always, sometimes, and seldom) matches (3- 2- 1) respectively, marks in total (114) marks.

-The scale's content validity measured by experts' opinions, and Cronbach's alpha calculation = 0.76, Pearson's correlation = 0.80, that considers acceptable as scale's Reliability.

2.3. The Sample:

The sample was randomly chosen from students enrolled in Comp101N course, two sections as: (30) girl experimental group learned using FCRS and (30) girl control group learned traditionally, in total (60) students. To insure the equivalence of the two groups T-Test was used for pre-Achievement test scores as follows in the table (1):

Table 1. T-Test of pre-Achievement test Scores of the Control Group Students and Experimental Group Students.

Variable	N	Mean	Std. Dev.	T-calculated	F. Value	Sig.
Con. Group	30	4.967	0.4806,	T=0.1608	1.054	No
Exp. Group	30	5.080	0.5129	Def=58		

Table (1) showed that the IT students who were not yet exposed to FCRS had mean scores of (4.9) in the control group and (5.1) in the experimental group, it shows the mean score of the pre-test approximately in both control group and the experimental group. The t-calculated value was (0.16), it with Not significant. This implies that there is no significant difference in the mean achievement scores of control or Experimental group, therefore; the two groups are almost equivalent, and were accepted as study sample groups.

2.4. The Procedures:

2.4.1. The Pre-application of Assessment tools to both Experimental group and Control group at the 1st week.

2.4.2. Delivering the Mashup tools by Blackboard at home gradually according to the timetable (takes 8 weeks), to the student section of the experimental group, after declaring the Idea if FCR to students.

2.4.3. Every section has identical code in Blackboard, all students enroll in the course could access to the separated webpage of the course with the password and username, but only the students of Experimental group section have all the submitted Mashup multimedia.

2.4.4. Blackboard forum has been used to follow the individual response and encourage the interaction about how appropriate the Mashup in learning the topics.

2.4.5. The Experimental group students achieve the working papers of solving problem, interactive learning, and group discussion during the class time.

2.4.6. The teacher guided the interactive activities; the students have to introduce tasks report, which have been evaluated according to both the home individual activities work and in class group interactive work.

2.4.7. The Post-application of Assessment tools to both Experimental group and Control group at the 10th week.

3. Results:

3.1. To examine the first hypnosis; which stated that: "There is a statistically significant difference between the scores of students in the control group and in the experimental group in achievement test in the favor of scores in the experimental group" The results of the data analysis carried out are presented in table (2):

Table 2. T-Test of Post-test of Achievement Scores of the Students of Control Group and Experimental Group.

Variable	N	Mean	Std. Dev.	T-Cal.	Def	F. Value	Dfd	Sig
Cont. Group	30	8.233	0.40	T=7.254	58	1.892	24	< 0.0001
Exp. Group	30	12.08	0.32					

Table (2) shows that achievement test scores mean of the students in Control group was (8.23), and the achievement test scores mean of Experimental group was (12.08). The t-calculated value was. The t-calculated (7.2) is more than t-critical at 5% level of significance which makes the F (1.9) significant.

This implies that there is a significant difference in the mean achievement test scores of Experimental group who were exposed to FCRS in comparison with Control group, therefore, the first hypothesis is accepted.

3.2. To examine the second hypnosis; which stated that: "There is a statistically significant difference between the scores of students in the experimental group Pretest and posttest of achievement test in the favor of the posttest scores." The results of the data analysis carried out are presented in table (3):

Table (3). T-Test of Pre and Post achievement test Scores of Experimental Group Students.

Variable	N	Mean	Std. Dev.	T-Cal.	Def	F. Vale.	Df	Sig
Pre-test	30	5.08	0.51	T=11.57	58	2.55	24	< 0.0001
Post-test	30	12.08	0.32					

Table (3) shows that achievement test scores mean of the Experimental group students in: Pre-test was (5.08), and post-test was (12.08). The t-calculated value was. The t-calculated is more than t-critical at 5% level of significance (11.57) so F = (2.55) significant.

This implies that there is a significant difference in the mean achievement test scores of Experimental group in who were exposed to FCRS at post-test in comparison with Pre-test, therefore, the second hypothesis is accepted.

3.3. To examine third the hypnosis; which stated that: "There is a statistically significant difference between the scores of students in the control group and in the experimental groups in SRLSs scale in the favor of scores in the experimental group" The result of the data analysis carried out is presented in table (4):

Table 4.T-Test of the SRLSs scale Post-test of the Students of control Group and Experimental Group

Variable	N	Mean	Std. Dev.	T-Cal.	Def	Sig
Cont. Group	30	22.6	3.4	2.6	58	
Exp. Group	30	24.2	2.0			

t – Critical=1.7

Table (4) revealed that the mean score of post-test of the SRLSs scale of the control group was (22.6), while the mean score of a SRLSs scale of the Experimental group increased to (24.2); the T-Cal. is (2.6) is greater than the t-critical of (1.7) which made it significant.

This implies that there is a significant difference in the mean of SRLSs scale scores of the students taught with FCRS in comparison with the control group. That means the third hypothesis is accepted.

3.4. To examine the fourth hypnosis this stated that: "There is a statistically significant difference between the scores of students in the experimental group Pretest and posttest of SRLSs scale in the favor of the posttest scores" The results of the data analysis carried out are presented table (5):

Table 5. T-Test of the Pre and Post SRLSs scale Scores of the Experimental Group Students.

Variable	N	Mean	Std. Dev.	T-Cal.	Def	Sig
Pre-test	30	22.2	3.3	3.3	58	**
Post-test	30	24.2	2.0			

Table (5) revealed that the mean score of SRLSs scale of the Experimental group at pre-test was (22.2), while the average score of the group increased to (24.2) at the post-test; the T-Cal of (3.3) is greater than the t-critical of (1.7), which made it significant.

This implies that there is a significant difference in the mean SRLSs scale scores of Experimental group taught with FCRS at post-test in comparison with Pre-test, therefore the fourth hypothesis is accepted.

3.5. To detect the Effect Size of FCRS in enhancing achievement and SRLSs for the experimental group:

The equation of (Rosenthal& Rosnow, 1991) has been used to calculate Cohen's "d" from the value of the T- test of the differences between the two means; "Def " is the degree of freedom. Cohen (1988) hesitantly defined effect sizes as "small, d =0.2," "medium, d =0.5," and "large, d = 0.8", stating.

The result of the data analysis carried out is presented in table (6):

$$d=2t / \sqrt{(df)}$$

Table (6) calculating the Effect Size of FCRS in enhancing achievement and SRLSs for the experimental group

Independent variable	dependent variables	Def	T-Cal	d-value	effect Sig
FCRS	achievement	58	11.57	3	Very large
	SRLSs	58	3.3	0.8	large

It is clear from table (6) that "d" equal 3, which is " large" effect. That means FCRS of enhancing achievement for the students.

It is clear that "d" equal 0.8 is "large" value; that means FCRS enhancing SRLSs.

The result showed that FCRS has an effect in enhancing achievement and SRLSs for students taught with FCRS.

4. Discussion

4.1. The effect of FCRS in enhancing achievement:

Descriptive data showed that students who taught with FCRS in the experimental group compared with the control group and in post-test compared with pre- test exhibited increased significantly achievement scores by the effect of FCRS. Therefore, it can be concluded that the blended learning environment that FCRS adequate in two Parts: First with Blackboard removes all barriers to learning, engaging, privacy, flexibility in students' home to help them to build their knowledge about the course topics individually, the delivery of Blackboard Mashup about the topics such as YouTube, PPt, Flickr, and PDF to students' home increase the levels of learning motivation, especially for girls who spend long time at home with technological facilities to understand at their own speed. Formerly extra benefit from home time that teachers could use Blackboard to follow and improve student learning and achievements and second to integrate the topics learning the FCRS spend the class time in practicing the prepared working Papers, in collaborative interactive groups based on problem solving activities, for working on exercises, applications, discussions and evaluation, with immediate feedback from the teacher and peers, that enrich learning process from the recall level to the evaluating level according to Bloom taxonomy, thus student converted from passive receiver of knowledge to active promoter of knowledge. Subsequently, it is remarkable a big increase of the rate of lecture' attendance from the students, who have positive cooperation in-between group and positive completion among groups, the groups' forming changed in rotation to prepare learners for the actual life of work as cooperation work is necessary. Hence increasing the interaction within the class between teacher and student rather than between each other, students can find opportunities to discuss with their teachers the difficulty examines concepts.

A review of the previous studies indicated that these results agree with the results of: (Haroun& Sarhaan, 2015; Ozdemir; Arslan, 2016; Zainuddin& Halili, 2016; Strayer, 2012; Talley & Scherer, 2013; Bradford et al., 2007; Ambreen, Haqdad & Saleem, 2016), who shown a positive effect of flipped learning model on Achievement. While the results did not agree with the results of (Shyu, 2014), who found no significant difference in the achievement, and (Blair, Maharaj & Primu, 2016) who reported a small progress effect of FCRS to enhance the Achievement.

According to FCRS the direct and purposeful learning experiences that can be attained to improve the students' academic achievement, that appears in higher achievement scores, Moreover the result of the effect of FCRS to enhance the Achievement stated a positive effect, consequently FCRS for is consider appropriate strategy to enhance students' achievement in higher education courses (Zainuddin& Halili, 2016).

4.2. The effect of FCR in enhancing SRLSs

Regarding to the self-regulated learning skills SRLSs, The descriptive data indicated that students in the experimental group compared with the control group and in post-test compared with pre- test showed increased significantly SRLSs scores by the effect of FCRS. The reasons for those results may occurred to: the transforming to a student-centered classroom context incorporating technology, Hence the FCRS acquired self-control and adapting the learning habits, students are taking their own learning responsibilities. the benefits of regulating the whole learning' phases cognitive, responsive, perspective, and performance; Making essential interactions within the teacher and peers then taking and giving feedback. Finally, the teachers' role changed Instead of transferring knowledge directly, into being guided for feedback misunderstandings and learning' facilitator to enable students to form SRLSs. These results agree with (Nguyen& Ikeda, 2015; Butzler, 2016; Ozdemir & Arslan, 2016)

The four examined SRL skills; "goal setting and planning", "Keeping Records and Monitoring", "Rehearsing and Memorizing" and "Seeking Social Assistance" are considered unlimited outcomes, which the formation of FCRS helped the students to improve; since the first and second sub-skills could be improved at home and the third and fourth sub-skills in class; remarks appeared that students established

goals and planed their home tasks' activities related to received Mashups according to time schedule, the Blackboard is considered a records monitoring the home activities and forums as well; whereas in class the students practicing activities require recall the learned data, and no doubt, become social aid form group' peers and feedback from teacher to achieve the classroom task. All these outcomes may equate the students' learning and academic achievement as well, these results approved with (AlJarrah, 2010; Leana-Tascilar, 2016, Zimmerman, 1990; Zimmerman1995; Ahmed, 2007; Butzler, 2016; Geduld, 2016).

5. Conclusions

Although E- education is expanded, modified, and being flexibly and costless available, university instruction become at critical situation, in other hands job markets needs is rapidly expanding, this acquire a comprehensive pressure on higher education courses, to advance the individual educational experience of their learners, not only students who demanding higher outcomes, but accreditation institutions as well, thus; the formation of self-lifelong' learner, which is an essential requirement in the era of knowledge technological development; FCRS is considered one of the effective innovative instructional strategy benefit from the technology facilities, by incorporating several sources of online multimedia about the courses topics to be transformed at students' home, and practicing massive group activities in class to accomplish active learning experiences.

Consequently; FCR require guarantees of students' activity in/ out the classroom; as they are not only learn in classroom but at home as well; while teacher is following the progress of the learning processes in between small group work; it remains an important factor in FCR that effort which students do to learn individually in home, which varies from one student to another depending on possessing many mental and personal skills, and influence of the self- regulated learning skills SRLSs; to help the learner to organize the context in a way allowing self-learning capabilities, the current study appyied FCRS in two phases by transforming numerous Blackboard Mashup tools to learners' home, and practicing class activities in groups; which helps them to practice self-organized learning skills to increase academic achievement. Accordingly; could be concluded that FCRS attains both the individual and interactive cooperative learning and follow the modern educational theories. FCRS could be very vital for students that have special needs or high absence rate. Finally FCRS like other instructional strategy adequate topics, students, specializations, learning environment and periods more than other; so it is important to apply it in appropriate context.

4.Recommendations:

4.1.Teachers should have training to use FCRS in the teaching of students in modern courses.
4.2.Educational stakeholders should encourage teachers to have qualifications in Education, so they are exposed to modern methods of teaching, which help to improve students' SRLSs.

4.3. Parents and students should be aware of the positive influence of technology on students' academic performance; when it introduced in effective ways of teaching to improve learning.

4.4. Researcher should prepare needed tools that help assembly processes and learning environments for applying FCR successfully and more effective.

4.5. Teacher who couldn't create FCRS multimedia could transfer from several free websites.

Future research is needed in distance education, practical courses and postgraduate as well.

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