Flipped Learning in Saudi Higher Education during Pandemics

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Abstract:

There is increasing pressure on higher education institutions to make a transformation in light of pandemics, as education is seen as needing to adapt in ways that meet the conceptual needs of our time. This reflects the rise of the inverted classroom. The purpose of this scope review was to provide a comprehensive overview of relevant research regarding the emergence of the Flipped Classroom to female students in Saudi universities studying at the College of Education, and to identify any gaps in the literature that could aid in future design and evaluation. The results indicate that there is student satisfaction with the inverted approach reflecting its importance at the present time.

Keywords: flipped education, students, higher education, Saudi university, e-learning.

1.Introduction

The concept of the flipped classroom has recently spread and falls within the strategies of home activities. It is a form of blended learning in which modern technology is cleverly used. In the flipped classroom, according to Cevikbas and Kaiser (2020), the skills of the twenty-first century are manifested, in which the student turns into a researcher by using technology effectively through learning outside the school boundaries, enhancing critical thinking, self-learning, communication skills and collaborative work among students, causing change in students' achievement of high educational outcomes. According to the Derek Bok Centre for Teaching and Learning at Harvard University “a flipped classroom is structured around the idea that lecture or direct instruction is not the best use of class time”. Instead, students encounter information before class, freeing class time for activities that involve higher order thinking.

It has been described as the future of education by many interested in developing teaching methods and strategies and considered the easiest way to educational technology without compromising the principles of traditional education, which considers the direct interaction between the learner and the teacher on the one hand, and between the learners among themselves on the other hand, an essential pillar for building learning (Islam et al., (2020); Love et al., (2014)).

The Flipped Class Strategy has clearly upended traditional class systems. In the traditional class, the teacher explains the lesson and leaves the students to delve into the concepts at home, through homework or daily duties, which does not take into account the individual differences between the students. In the flipped class, the teacher prepares an electronic visual file explaining the contents of the lessons and new concepts using audio-visual techniques, interactive presentations, and simulation programs, so that students can watch them before the lesson, so as to be available to them throughout the time. Students come to the classroom and are ready to apply the concepts and content. They partook in a series of active learning, investigative and experiential activities, math problem solving, teamwork, and assessment of work progress, rather than wasting time listening to the teacher (Dhawan, 2020).

For the teacher, in the traditional system most roles are centered around them. In the traditional system, the teacher sometimes deals with students as empty containers, pouring information without any interaction. In flipped learning, the teacher seeks to link students' success to thinking independently, solving unexpected problems, and dealing with complex issues (Blau & Shamir-Inbal (2017); Ardan et al., (2020)). The teacher's goal was often to deliver information to the student, their goal became to better understand students' needs by answering the following questions: What do students learn? How do they apply what they have learned in practice?

Accordingly, the teacher becomes more interactive with the students and more aware of the extent of their acquisition of concepts and the speed of their assimilation of them through the feedback provided to them, in addition to the availability of sufficient time in the classroom to train and inspire students, develop their skills and deepen their concepts, in addition to the teacher's ability to discover areas of difficulty in students and perceptions they have, because it focuses on each student. That is why many new names for the teacher have appeared, such as the facilitator, the mentor and the trainer (Monzonís et al., (2020). Hence, it is clear that for the teacher to implement the flipped classroom strategy, they must possess the skills of dealing with technology in its various forms, conceptual knowledge, and teaching experiences (Clark-Wilson et al., (2020); Aşıksoy & Özdamlı, (2016)).

The study's main objective is to identify the effectiveness of using the flipped classroom strategy and its impact on raising the level of academic achievement of higher education students in the Kingdom of Saudi Arabia. Furthermore, it aims to enrich one of the most important fields of educational studies, which is the effectiveness of the application of e-learning and the flipped classroom and its impact on raising the level of student achievement in higher education. It directs the student to use technology effectively and accurately to extract knowledge, and it also aims to accustom the student to the fact that knowledge acquisition has become the primary motivation behind their learning. This study helps educational leaders to access a training program to develop the education process from stereotyping to innovation.

2.Literature review

2.1 Flipped Row Design Criteria:

The Flipped Classroom Network fostered the idea of the Flipped Classroom, which is a methodology that permits instructors to carry out an alternate technique in their homerooms.

1- Flexible climate

Its flexibility considers different learning techniques, and teachers frequently revamp their virtual learning spaces for each unit and students (understudies) pick spaces for when and where to learn. Additionally, teachers put in their assumptions for understudy learning plans, particularly for appraisal (Fontana, 2020). They build up spaces and periods that permit understudies to connect and think about their learning depending on the situation. Consistently screening understudies helps to make changes as the circumstance requires (Gómez-Carrasco et al., 2020).

They are giving understudies various approaches to learn content and exhibit dominance. There should be adequate adaptability in the learning climate and those accountable to oblige such elements and work with the instructor's tasks. Indeed, even the educator should acknowledge that there might be a lot of development and commotion in the homeroom on occasion, which is different from a regular classroom (Islam et al., 2020).

2- Learning society

In the conventional model the educator is the focal point of the instructive cycle, but the data is flipped in the homeroom, dedicating time to investigating themes in a more prominent way and setting out rich learning to open doors. Accordingly, understudies are effectively occupied with building information (Agarwal & Kaushik, 2020).

3- Intentional substance

The Flipped Classroom Network expresses that Flipped Learning educators are continually utilizing thinking. Step by step instructions to turn around learning can assist understudies with fostering comprehension of ideas and procedural familiarity. Instructors utilize support to amplify promising opportunities and techniques for visiting understudies in dynamic learning systems,

contingent upon the grade level and topic. The three columns are (Lapitan et al., 2021):

1. The students come up with the ideas without anyone else.
2. The educator makes or regulates recordings and related content for his understudies.
3. Make the content available to all understudies, giving them proper direct input and assessing their work.

Figuring out what content will be introduced through direct educating and what can be introduced to understudies relies upon cautious speculation in breaking it down and settling on choices dependent on the idea of the material and understudies (Park & Kim, 2021).

4-Professional educator

Instructors in turn are quick to convey work, acknowledge productive analysis, and not allow distractions to control their classes (Smith & Boscak ,2021). On the expert side, instructors of flipped classes produce fewer tasks in regular classes. These are the fundamental fixings that empower this turn around its pillars (Zainuddin & Perera, 2018):

1. The educator makes themself accessible to all understudies, to the individual, and in miniature gatherings.
2. Give constant input depending on the situation.
3. Conduct progress developmental appraisals during a time frame by noticing and recording remarks to educate future guidelines.
4. It reflects participation with different teachers and accepts accountability for changing practice to quality. In opposition to what some may expect, the requirement for a capable educator and mentor becomes less important in flipped learning. This kind of learning does not target the educator; instead, the requirement is for instructors who can manage this example (Quansah, 2017).

2.2The role of the teacher in the flipped classroom:

The teacher prepares a visual file that explains the new concepts using audio-visual techniques, simulation programs and interactive assessment to be accessible to students before the lesson, and available to them over time. Thus, students in general, and average performers who need more time in particular, can repeatedly view the interactive contents, so that they can assimilate the new concepts (Tang et al.,2020).

In this case, students come to class and are fully prepared to apply those concepts, participate in classroom activities, and solve practical problems rather than wasting time listening to the teacher's explanation. The excellent use and organization of the e-learning environment supports this interactive model, provided that there is creativity on the part of the teacher to find motivation for the student to learn through the interesting interactive material prepared before the lesson (Latorre-Cosculluela et al., 2021).

The concept of the inverted classroom ensures the optimal use of the teacher’s time during the lesson, where the teacher evaluates the level of students at the beginning of the lesson, then designs the classroom activities by focusing on clarifying what is challenging to understand, and then supervises their activities and provides appropriate support for those who still need it; thus, the levels of understanding and educational attainment of all students are very high, because the teacher took into account each student's abilities (Villa et al., (2020); Goksu & Duran (2020)).

The teacher's opinion about the use of flipped classrooms in the teaching process are as follows:

1. It builds stronger student-teacher relationships.
2. It encourages better use of modern technology in the field of education.
3. The student becomes a researcher for their information sources.
4. It enhances critical thinking, self-learning, building experiences, communication skills and cooperation among students.
5. It ensures good utilization of class time.

6. Students are allowed to repeat the lesson more than once based on their individual differences.
7. The teacher uses the class more for guidance, motivation and assistance.

2.3 The role of the student in the flipped classroom:

Based on the focus of inverted learning on the positivity and participation of the learner and the focus of the educational process, the role of the learner in the educational situation can be determined as follows (Basilaia & Kvavadze ,2020):

1. The student in the active educational situation enjoys positivity and effectiveness.
2. The student is involved in the planning and implementation of lessons.
3. The student searches for information unaided from multiple sources.
4. The student participates in self-evaluating, and determines the extent to which they have achieved goals.
5. Pupils practice a variety of activities.
6. The student participates with colleagues in collective cooperation, and takes the initiative to ask questions, comment on what is said, or present new ideas or opinions.
7. The student should have the ability to discuss and debate, and be familiar with all current events and issues.

Flipped learning results in a student with the following qualities and skills (ElSaheli-Elhage, 2021):

1. Self-esteem, activity and movement, the ability to manage one's own affairs.
2. Adherence to the values and culture of society, vigilance and awareness, the ability to criticize and dialogue, and the ability to work within the framework of the group.
3. The ability to observe and compare, accuracy, the spirit of leadership and positivity, the ability to make decisions, the ability to plan, self-evaluation and the evaluation of others.

4. Follow the scientific method in analysis, thinking and problem solving.

2.4 The challenges for teachers in the flipped classroom

The difficulties that educators face in executing the flipped study hall methodology and the proposed answers despite the numerous up-sides of the procedures for the understudy, instructor, and parent, are shown in a few reports (ElSaheli-Elhage, 2021). Coming up next is an outline of the most essential difficulties from the instructors' perspective:

Reduced significance of the instructor, as this technique decreases their role, however, most educators see that the main jobs of the educator have changed. It is now fixed on giving talks, inspecting understudies, and amending answer sheets; they play new parts in planning recordings as well as to get exercises ready that invigorate basic reasoning and foster imagination as well as learning exercises. This is notwithstanding the use of higher-request thinking abilities like basic reasoning and inventive thinking (Quansah, 2017).

Some understudies do not have access to the Internet, as numerous districts and nations experience the ill effects of framework issues, particularly in agricultural areas. One of the proposed arrangements on this subject is to set up the recordings ahead of time and offer them to the understudies as a coordinated document to reveal to them the video they will watch the following day. The instructor can set up the recordings week by week or month to month, or can set them up for a whole class and afterwards convey them to the understudies, notwithstanding the chance of downloading them on the Internet (Love et al.,2014).

Understudies do not always wish to sit at home before a PC screen to watch the video arranged by the instructor, they like to go out to the club or with their friends. The test is how much anticipation and energy is there in the actual video? One of the benefits of the flipped homeroom technique is that the understudy can watch the recordings anytime.

There is no proof that the understudies watched the recordings at home. Here we incorporate many proposed arrangements, where the educator can discover a few different ways to drive the understudy to watch the video clips of the examples, including the presence of an

inquiry toward the end of the video. The understudies send their response to the instructor as an instant message or by email, so the educator praises the understudy who has achieved the most noteworthy reply; the instructor additionally asks for a record of every understudy called the day-by-day readiness record, in which the understudy records the main thoughts contained in the video and the inquiries and requests experienced while watching it. The understudy sets up the account and watches the clip. One of the recommendations to take care of this issue is that the instructor toward the start of every illustration gives the understudies a short inquiry (test), which can be called the class schoolwork, through which they estimate the understudies' development of the video, the discernments they have and the troubles they experienced while watching the clip (Islam et al., 2020).

Here we give an illustration of the experience of the trailblazers of the flipped study hall technique, Jonathan Brigman and Sam Warson, who shared jobs, one getting the film ready and the other planning exercises and planning for tests. As the use of this procedure is for all classes, many locales give instant recordings like the Khan Academy (ElSaheli-Elhage, 2021); Basilaia & Kvavadze, 2020)).

Educators need time to get the video cuts ready for illustration since they may not have experience of planning an example utilizing video altering and altering programming. For this test, a PC instructor can be utilized to prepare educators on the basic projects, the most well-known of which are Camtasia and Movie Maker. These two projects are basic and can be learned in a brief time frame.

2.5 Saudi Arabia high schooling and flipped learning

Saudi colleges are continually trying to foster their instructive framework, addressed in the reception of data and correspondence innovation in their projects and courses and the utilization of e-learning frameworks. Advanced education in the Kingdom of Saudi Arabia has a spearheading experience in the field of utilizing present day innovation in instructing and learning, and a way of thinking dependent on opportunity of instructing and learning, its techniques, strategies and systems, which opens up possibilities for the instructor in the quest for the use of current instructing procedures that keep up with cutting-edge innovation. Notwithstanding these endeavors, the aftereffects of many examinations have shown a portion of the difficulties confronting college instruction in the Kingdom, which highlighted insufficiencies in the design, techniques, content and

method for schooling. Besides, Saudi colleges direly need to foster their vision and mission to oblige current specialized perspectives.

3.Methodology

3.1 study method

The study followed the descriptive approach, because this method is one of the most appropriate scientific research methods for the subject of this study.

3.2 The study population and its sample

The study population consisted of female students in the colleges of education in Saudi universities. The study sample consisted of 100 female students in the colleges of education in 4 Saudi universities, and they were chosen by the simple random method. They were contacted through the social networking pages of groups and pages for female students in the Saudi Colleges of Education. Moreover 49% of the study sample were female students in the final year, while 25% were first-year university students, and 15% were in the second and third grades.

Table 1:

demographics of the study participants

Variable	Categories	Percentage
Age	>18	47
	<18	53
Study Year	First Year	25
	Second Year	15
	Third Year	19
	Fourth Year	49
University	King Abdulaziz University	25
	King Saud University	19
	King Faisal University	13
	Jeddah University	43
	Total	100

3.3 Study tool

The survey was utilized as an information assortment apparatus. The survey was readied in the light of understanding what was referenced in the instructive writing, concerning transformed learning, perspectives towards it, and obstructions to its application. The poll was applied electronically.

In its underlying structure, the poll comprised of (30) questions estimating the mentalities of female understudies in Saudi colleges towards the utilization of flipped learning, conveyed by the following three areas, as follows:

1. The central hub: the understudies' perspectives about the significance of flipped learning for them.
2. The subsequent hub is the female understudies' viewpoints on the viability of flipped learning for college understudies.
3. The third pivot: obstacles to utilizing transformed learning in instructing in Saudi colleges.

3.4 Statistical techniques

The information was investigated using the factual programming bundle for the sociologies (SPSS 24) utilizing the accompanying measurable techniques: rates and number-crunching midpoints to compute the reactions of the review test to the poll, standard deviations to work out the degree of scattering of the reactions for every one of the survey elements, and the t-test to discover the contrasts between the reactions.

4. Results

4.1 - Results related to the first axis: the students' opinions about the importance of flipped learning for them.

The arithmetic averages and standard deviations of the responses of the sample members were calculated on the first field of the questionnaire, and then the percentage and the degree of approval for each paragraph of this field were calculated and inverted in teaching. The approval of the sample members evidences this to a considerable extent on all paragraphs of this field. The arithmetic average of the sample responses reached (4.12) to a considerable degree, and these results indicate that inverted learning contributes to

achieving many goals, including the better use of modern information technologies, which is imperative in light of the continuous development of these technologies and the roles they can play. Flipped learning contributes to making the learning process more interactive, unlike traditional learning methods, as there are multiple opportunities for interaction between students and between them and educational content, and between them and female students. It increases the learning time and saves effort in the process of lecture-based explanation.

Table 2:

analysis of the first axis of the study tool.

No	Statement	mean
1	Flipped classroom encourages me to practice critical and creative thinking	3.997494919
2	Learning foundational content prior to class greatly enhances my understanding of material	3.693788671
3	Flipped classroom gives me the opportunity to ask more questions inside the classroom	4.236845746
4	Flipped classroom attracts my attention to learning and teaching process	4.086533469
5	Flipped classroom can be a suitable teaching strategy	3.934138384
6	Flipped classroom can improve interest in exploring topics	4.03463866
7	Flipped classroom is more engaging than the traditional classroom	3.922939855
8	Flipped classroom gives me less class time to practice the concepts of course	4.215919314
9	Flipped classroom reduces the effort to understand the basic knowledge of the subject matter	4.336383036
10	Flipped classroom, along with delivery of content outside class and problem solving in class, is an instructional method appropriate for my specialization	4.262277855

No	Statement	mean
11	I am more motivated to learn the concepts of course via the flipped classroom	3.814681501
12	Flipped classroom improved collaborative learning	4.097622764
13	Flipped classroom can improve interest in class	3.665638085
14	I got the ability to self-pace my learning with flipped courses	4.472127892
15	Flipped classroom gives me greater opportunities to communicate with other students	4.492014289

4.2 Results related to the second axis, female students' opinions on the effectiveness of flipped learning for university students

To answer this question, the arithmetic averages and standard deviations of the responses of the sample members were calculated on the second axis of the questionnaire, and the percentage and degree of approval of the questionnaire were calculated. These results indicate the importance of inverted learning for female Saudi university students; the use of flipped learning requires acquiring electronic skills, and employing modern communication techniques in lecture halls more effectively, in addition to many points related to the diversity of teaching strategies, the application of realistic assessment, and the enhancement of communication skills between faculty members and students.

It is clear from Table 2 that there are “very significant” positive attitudes among female students towards the effectiveness of flipped learning for university students.

The field is vast, with a mean of (4.21). These results indicate the importance of flipped learning for university students, as the application of flipped learning acquires self-learning and continuous learning, and works to increase students’ integration in learning activities. It contributes to improving academic achievement and developing different thinking skills, as well as problem-solving skills.

Table 3:

analysis of the second axis of the study.

No	Statement	mean
16	I feel that watching videos and taking notes contribute efficiently to my learning	3.707074123
17	With flipped classroom model, I feel more prepared for my exam	3.747575504
18	I like watching the lessons on video	4.223035143
19	I believe that I am able to learn material with flipped classroom instruction better than with traditional lecture-based instruction	4.073224497
20	I would recommend flipped classroom to a friend	4.43579164
21	Flipped classroom matches my learning style	4.43579164
22	I felt prepared to complete course tasks in class after listening to the video content	4.159550851

4.3 Results related to the third axis: obstacles to flipped learning in teaching in Saudi universities.

To answer this question, the arithmetic means and standard deviations of the responses of the sample members were calculated on the third axis of the fields of the questionnaire, and the percentage and degree of approval for each of the paragraphs of this topic were calculated. Table 4 illustrates these results. It is clear from the table that there are "considerable" obstacles facing the students towards the use of flipped learning. All the responses to the paragraphs of this field came to a considerable degree, with a mean of (4.31). These results indicate several obstacles to flipped learning in teaching, the most important of which are: the difficulty of producing educational videos with technical capabilities, given that the production of these clips requires a certain amount of familiarity with video programs and dealing with video clips and audio clips, which may not be available to a large number of students. This may be due to difficulties in connecting to the Internet, or the lack of self-learning skills. Another obstacle is that the use of flipped learning is associated with watching various videos and browsing multiple websites.

Table 4:

results of obstacles to using inverted learning in teaching in Saudi universities.

No	Statement	mean
23	I wish more instructors use the flipped or inverted classroom model	4.657824856
24	I frequently pause or repeat parts of the videos in order to increase my understanding of the material	4.053165562
25	With flipped classroom, we have to do more work out of the classroom	4.218788051
26	The use of flipped learning requires acquiring electronic skills	4.105865153
27	The difficulty of producing educational videos with technical capabilities	3.94313039
28	Less personal interactive with the lecturer	4.527406855
29	Required internet connection	3.958984715
30	Requires self-learning skills	3.997904651

4.4 Results of the relation of the study stage and the student's acceptance of the flipped education

T-test was used for two independent samples to identify the significance of the differences between the average responses of the students towards the use of flipped learning in teaching according to the variable of the academic stage, and Table 5 illustrates this. It is clear from Table 5 that there are no statistically significant differences between the average responses of faculty members towards the use of inverted learning in teaching, according to the school year variable for the female students, for all fields of the questionnaire. These results indicate that there is agreement among the sample members, at different educational stages, regarding the role of flipped learning in education, and its importance for university students at the College of Education in the Kingdom of Saudi Arabia, in addition to their agreement regarding the obstacles that prevent the use of flipped learning in an extensive manner in university teaching.

Table 5:

t-test analysis

t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	Lower	Upper
first year	**-2.801**	**8**	**0.023**	**-0.808**	**0.28851**	**-1.47331**	**-0.14269**
second year	**-2.801**	**6.17**	**0.033**	**-0.808**	**0.28851**	**-1.50928**	**-0.10672**
third year	**2.841**	**8**	**0.022**	**0.596**	**0.20975**	**0.11231**	**1.07969**
fourth year	**2.841**	**4.109**	**0.045**	**0.596**	**0.20975**	**0.01966**	**1.17234**

Conclusion:

The Flipped Classroom is an instructive technique where understudies (students) initially have access to the course content before coming to class through readings and **video addresses.** They then, at that point, invest energy in taking part in exercises planned by educators to advance a more profound comprehension of an idea.

Because of understudies assuming liability, regularly cooperating with their educator and classmates, often getting and giving criticism, they acquire a more profound comprehension of the content and how to utilize it. The job of the understudy shifts from the aloof recipient to the dynamic maker of information, offering them chances to work on utilizing the scholarly apparatuses of the specialization. Understudies apply course ideas with teacher direction. This expanded collaboration provides a local learning area that urges them to fabricate information throughout the study hall. As understudies have more freedom to apply their insight and accordingly show their capacity to utilize it, the holes in their arrangement become apparent to both themselves and the tutor.

For some purposes, the flipped class has become inseparable from dynamic learning. There are numerous approaches to consolidate dynamic learning into courses and flipped classes are one of those ways. The flipped homeroom is coordinated around the possibility that a talk or direct guidance isn't the best utilization of class time. All things being equal, understudies experience the data before class,

which saves class time for exercises that include more significant level reasoning.

Despite the fact that flipping the study hall has for quite some time been used in certain disciplines, the idea took off in light of the fact that innovative changes made it simpler to make and access instructive materials. This methodology sees no distinction between an understudy paying attention to a talk exclusively and different understudies in the class. There are numerous ways in which these exercises contrast, and there are benefits that a talk can give, for example, creating a social encounter, that understudies get from other understudies' expressive gestures. There are likewise systems you can use to make the talks intuitive.

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