

ATTITUDES OF FACULTY MEMBERS AT AL-BALQA APPLIED UNIVERSITY TOWARDS USING THE SEVEN-CYCLE LEARNING MODEL (7ES) AND THE OBSTACLES TO ITS APPLICATION IN TEACHING

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Abstract: The current study aimed to identify the attitudes of faculty members at Al-Balqa Applied University towards the use of the seven-cycle learning model (7Es) and the obstacles to its application in the field of teaching in all faculties affiliated with Al-Balqa Applied University from the academic year (2020-2021), during the second semester. To achieve the objectives of the study, a questionnaire was designed consisting of (40) items distributed on four axes. (4.37) and a standard deviation (0.73), where the axis of the faculty member's attitudes towards (7Es) in teaching came with a mean of (4.07), and the attitudes of the faculty members towards the importance of (7Es) for university students with an arithmetic mean of (4.05), and the attitudes of the members of the teaching staff towards the importance of (7Es) for them with an arithmetic average of 3.98, while the results showed that there were statistically significant differences in the attitudes of faculty members towards using (7Es) and the obstacles to its application in teaching due to the gender variable.

Keywords: The seven-cycle learning model (7Es), trends, obstacles, faculty members, university teaching.

INTRODUCTION

Technological developments have led to the development of all elements of the educational system at various levels of education due to the increase in the speed of knowledge spread through multiple means, the educational field side by side, in addition to the impact of the processes of developing curricula, textbooks and the means that enable the school to perform its work to the fullest. This led to the development of contemporary teaching and learning methods, and the emergence of methods based on the use of information and communication technology in all areas of teaching and learning.

The trends gather that the form of effective and purposeful integration of technology is an integral part of projects to develop the teaching and learning processes in recent decades, and it has become necessary to prepare students to face future challenges and opportunities, through effective and innovative use of technology, and to develop students' competencies in communication, critical thinking and metacognition. Solving complex problems, shifting away from information dissemination to inquiry-based learning, enhancing their ability to self-learning, providing them with different thinking skills in a way that helps develop their thinking, and using mental processes that help to understand the world around them and employ them in life.

This requires the development of university education systems that require reconsidering study plans and course descriptions, moving away from traditional templates, and thinking about new patterns, innovative formulas, advanced and high capabilities, modern methods and contemporary trends that are consistent with the needs of the development process so that through which the educational system can be promoted at the level of university education. (Siam, 2013).

Recently, university education has witnessed a new stage and a great leap that keeps pace with the technical development in the modern era and the increase in the preparation of universities that use devices to enhance their courses and educational systems, intending to make the educational process more interactive and organized, and educational policymakers have sought to set trends based on the employment of contemporary technological innovations. To establish and create a new fertile environment for learning based on cooperation between the performance of students and faculty members at the university (Ismail, 2009).

The learning cycle is one of the methods based on cognitive construction and derived from the constructivist theory of Piaget, which emphasizes the centrality of students in the process of learning scientific thinking skills. It is also concerned with learning based on building knowledge and the steps for its use. Expanding it and helping students to build knowledge regularly, as well as to develop thinking styles and practical skills, and their ability to draw their attention more towards teaching and learning and the constant search for information, knowledge, facts and concepts (Swelmeen, 2020; Yaegub, & Abu Sininih, 2020)

(7Es) has received great attention from researchers and educational institutions because it is a method that goes beyond mere interest in the content of the scientific material to focus on the scientific aspect and the method that is consistent with how the learner learns, a method that exposes learners to examination and practical experimentation; Which makes them discover the material and then build the concept and then apply this

concept in new educational situations, and it represents a valuable method for building scientific behaviour for the lifelong learner (Fadl, 2020; Bassam, 2008).

The researchers confirm that (7Es) constitutes a developed model that achieves the outcomes of effective teaching, which is one of the priorities of the goals of the contemporary educational process, including: (Al-Majon, Khattab & Ashour, 2019; Al-Sarayrah, 2017; Al-Zuhairi, 2017; and Al Hashem, 2002). The seven-cycle learning model achieves a set of goals to help the learner use his previous knowledge to build his new knowledge through excitement, curiosity, discovery, exchange of information, clarifying the relationships between the concept and other concepts through careful observation, and the learner's ability to self-knowledge on the one hand, and the development of scientific concepts and skills on the other hand. In addition to contributing to the development of academic achievement and inclinations and integrating with developments surrounding the educational environment (et al, 2011) (Aljallad, & Al-(dulaimi, 2018; Tawalbeh,).

(7Es) includes many learning methods, particularly deductive learning, inquiry learning, discovery learning, and self-learning to provide the learners with the opportunity to investigate and practice research and experimentation, discover scientific concepts, extract and apply them in new situations, in addition to the teacher's role as a facilitator and guide to the educational process. He is a trainer, designer and developer of the subject and a follower of the educational and learning activities progress and implementation (Aljallad & Al-dulaimi R. 2018; Qawasmeh & Qaderi, 2019).

(7Es) represents one of the modern teaching strategies that emphasize the interaction between the teacher and the learner and consists of seven stages: the excitement stage (activation, stimulation or preoccupation), the exploration stage, the interpretation stage (explanation and clarification), and the expansion stage (discovering new applications of the concept), the expansion stage (clarifying the relationships between concepts, knowledge and skills), the exchange stage (the exchange of opinions, ideas, information, and data), and the evaluation (testing) stage (Zaytoun, 2007: 455-459; Amani, 2015; Al-Hasanat and Abu Loum, 2020; Fadl 2020).

The researcher believes that the importance of (7Es) in helping students to use thinking correctly to access information and acquire knowledge through tangible experiences instead of abstract and formal presentations, to link their new knowledge with their previous concepts.

In addition to the above-mentioned importance of the role of (7Es) and the obstacles associated with its use, the prevailing attitudes among faculty members play a pivotal role in the use of (7Es). Psychologists have emphasized the importance of trends as motives for behaviour, as each forms tendencies towards individuals, groups, attitudes, social topics, and towards themselves as well. In other aspects, we always seek to reveal the directions of others about our thoughts and opinions following the direction we are taking; There are many definitions of orientation, as there is no single, comprehensive definition that is recognized by all those involved in the field, but the definition that has been mentioned and accepted more than others by the majority of psychologists is Gordon Albert's definition of the trend as "a state of readiness, preparedness, and mental and nervous preparedness." The psychological is organized through the individual's experience, and it has a dynamic directive effect on the individual's response to all the different topics and situations that provoke this response" (O'Keefe, 2002: 6; AL-Khatatna & Al-Nawaysa, 2011).

The trend reflects the total responses of the individual, which is represented in his behaviour towards the various social topics, issues and situations to which the responses of individuals differ, given that these topics or situations are necessarily dialectical, and views differ in them. The cognitive, social, emotional, and behavioural experiences collectively constitute an individual's experiences, whether explicit or implicit (Welner et al, 2003: 261; Shehata & Najjar, 2003).

Accordingly, psychologists assume that there are three main components of the tendency to varying degrees, and trends are formed when these components are interconnected and work together and it is difficult to separate any component from the other, and we can review these components as follows: (Al-Zag, 2008; Al-Luhaybi & Rayes, 2020)

Cognitive component: It consists of the set of beliefs, knowledge or ideas that the individual has formed or acquired about the subject of the trend, and represents his balance of experiences, information and beliefs that he knows about a particular subject to help him evaluate the response with or against the subject of the trend.

Affective component: This component refers to the patterns of positive and negative feelings and emotions towards a specific subject, i.e. feeling love or hate, satisfaction or dissatisfaction, and the degree of acceptance or rejection, and it includes the individual's desires and motives towards this subject, so this component emphasizes the importance of the emotional part. Attitude provides the emotional charge needed to drive behaviour into action.

The behavioural component includes two axes: behavioural intentions and actual behaviour. This component shows the individual's tendency to behave according to specific patterns, to become more inclined to behave in a specific behaviour towards a particular topic or idea so that the individual's behaviour and behaviour expresses the set of beliefs and feelings that he has formed, Attitudes act as directives for the behaviour of the individual,

prompting him to act according to the direction he adopts, and they are measured according to the individual's reaction to performing the behaviour or from observations or verbal responses.

Many previous studies have addressed the effectiveness of (7Es) in developing many related variables, including academic achievement and attitude (Fadl, 2020; Saraira, 2017; Al-Jallad and Al-Dulaimi, 2018; Fatiha and Al-Kilani, 2017, Sobha, 2007), achievement and basic science processes. (Hind, 2019), and enabling students to build integrated knowledge systems for scientific content and an effective method in difficult educational situations, and it also develops students' attitudes towards science (Safi al-Din, 2014; Barghout, 2012), and creates an atmosphere of mutual trust and respect between the learners themselves and their peers. Learners and teachers (Ezzo and El-Jaish, 2009), acquiring chemical concepts and developing a tendency towards chemistry (Al-Thalab, Al-Zafari, and Attia, 2017), achievement and level of ambition (Mojbil, 2011), developing critical thinking skills (Al-Hasanat and Abu Lum, 2017), and encouraging students to think Creative and critical, understanding scientific concepts and forming positive attitudes towards science (Wenglinsky, 2000).

Study problem and questions:

Al-Balqa Applied University seeks continuously and to develop its educational system, which is represented in the expansion of technical education based on practical skills, and the adoption of e-learning technology to improve its programs, courses and study plans, so it had a pioneering experience in the field of employing modern technology in teaching and learning, which has increased its effectiveness. During the Corona pandemic, as well as its philosophy based on the freedom of teaching and learning, its methods, and strategies, which opened wide horizons for faculty members in research and experimentation on the application of modern teaching strategies that keep pace with the era of modern technology and sudden and emergency changes.

Despite these efforts, the results of many studies have indicated some of the challenges facing university education (Al-Ruwaili, 2014), and shortcomings in the structure, methods, content, and various educational means of education. The dominance of the traditional method of university teaching that relies on narration, and memorization, is not commensurate with the nature of the responsibility placed on students at this stage. The study of (Al-Sheikh, 2006; Saleh, 2015) indicates that this stage requires the student's help in thinking, research, investigation and experimentation to reach results, and this would make concrete work an educational value and a major role in acquiring scientific concepts and developing basic scientific skills in learning science. On the other hand, the study of (Bakhit and Al-Abdulkarim, 2017) indicates the most prominent obstacles to science teachers' use of the learning cycle included in the Magruhl series in the primary jar, including the academic content is higher than the female students' abilities, the presence of skills within the curriculum that require more than one class, and the burdens Functionality entrusted to the parameter that limits the application of this strategy.

On the other hand, the study (Al-Luhaybi & Rayes, 2020; Al- Anzia & Al-Failkawi, 2017) indicated that researching the attitudes of faculty members towards the use of educational technology is more important than knowing its applications, tools and programs. It is necessary to evaluate the orientations of the faculty members and know the pros and cons of those orientations, to find out the essence of the problem related to the reluctance to use modern teaching methods based on the use of these tools in university academic education (AL-Khatatna & Al-Nawaysa, 2011). This indicates that there is a close relationship between the individual and his environment, and the indicator that illustrates this relationship is the trend, and it is necessary to point out the positive impact of applying (7Es) at the university level as shown by previous studies - as far as the researcher - there is no local study that dealt with Investigating the attitudes of faculty members towards using (7Es) at the university level and the obstacles to its application, and accordingly; This study came to define its problem in revealing the attitudes of faculty members at Al-Balqa Applied University and its affiliated colleges towards using (7Es) in teaching and identifying obstacles to its application. The study seeks through the problem to answer the following questions:

- What are the attitudes of faculty members at Al-Balqa Applied University towards (7Es) in teaching?
- What are the attitudes of the faculty members at Al-Balqa Applied University towards the importance of (7Es) in teaching?
- What are the attitudes of faculty members at Al-Balqa Applied University towards the importance of (7Es) in teaching for university students?
- What are the obstacles to using (7Es) in teaching at Al-Balqa Applied University?
- Are there statistically significant differences between the average responses of faculty members towards the use of (7Es) in teaching due to the gender variable?

Objectives of the study:

The current study aimed to know the attitudes of the faculty members in all the educational and basic departments in the faculties of the Al-Balqa Applied University towards (7Es) in teaching, for both the teacher

and university students, and the study also sought to reveal the obstacles to using (7Es) in teaching at the university and its faculties. In addition to investigating the effect of the gender variable on the attitudes of faculty members towards using (7Es) in the teaching process.

The importance of the study:

The importance of the current study on the theoretical level is due to shedding light on the strategy of (7Es) as one of the modern teaching methods based on investigation, research and experimentation, and the attitudes of faculty members towards the use of (7Es) in university teaching. It is also hoped that the study will be an entry point for developing a plan to develop the teaching of the courses that have been developed and introduced at the university at the intermediate university degree and bachelor's levels to be in line with contemporary educational trends. As for the practical side, it is hoped that this study will benefit researchers with its results in researching other topics, and the trainers in preparing training courses for faculty members and students to use (7Es) in teaching. The university aims to raise the degree of interest in using (7Es) in all the different academic levels, which would enable the student to learn by himself and develop his ability to use knowledge in his life. The current study complements the findings of previous studies that dealt with (7Es). Without addressing the attitudes of faculty members towards the use of (7Es) at the university level and the obstacles to its use.

Limits of the study:

The current study was limited to (7Es), trends towards it and obstacles to its use, and the study sample was limited to a group of faculty members in the educational and basic departments in all faculties affiliated with Al-Balqa Applied University, and the study was applied during the second semester of the academic year 2020-2021.

Procedural and idiomatic definitions:

The trend: the attitudes shown by the faculty members in the educational and basic departments of the faculties of Al-Balqa Applied University throughout the governorates of the Kingdom towards the use of (7Es) in teaching, and it is measured by the degree obtained by the faculty member on the items of the scale "Attitude towards the use of (7Es) in teaching." prepared by the researcher.

(7Es) : Is one of the models of the constructivist theory in teaching, which is an interactive teaching strategy based on activating the knowledge of the student in the formation and discovery of new scientific knowledge. (The test) (Munang, et Al, 2008; Bassam, 2008).

Obstacles: Obstacles that prevent the use of faculty members at Al-Balqa Applied University at the level of the educational and basic departments of using (7Es) in teaching.

METHODOLOGY

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

Study population and sample: The study population consisted of all faculty members in the educational and basic departments of the university colleges affiliated with Al-Balqa Applied University, who numbered (320) teachers, while the study sample consisted of (225) faculty members in the educational and basic departments with a percentage of (70%). From the study population, the academic ranks were as follows: (55) at the rank of teacher and a rate of (24.4%), (50) at the rank of full-time lecturer and a rate of (22.2%), (25) at the rank of assistant professor at a rate of (11.1%), (75) at the rank of professor participants with a percentage of (33.3), (20) with the rank of professor and a percentage of (0.9%), were chosen by the simple random method. Table (1) shows the distribution of the study sample according to the gender variable.

Table 1
 Distribution of study sample members according to gender variable

Percentage	Numbers	Levels	Variable
62%	140	Male	Gender
38%	85	Female	
100%	225		Total

Study tool

The questionnaire was used as a data collection tool, and the questionnaire was prepared in light of the researcher's review and review of previous studies and literature (Al-Luhaybi & Rayes, 2020; Al-Anzia & Al-Failkawi, 2017; Ddaribi, 2016; Al-Baghaidi, 2018), in addition to what was mentioned in the educational literature regarding (7Es), trends towards it and obstacles to its application. The questionnaire was applied in two ways: manual and electronic.

The questionnaire, in its initial form, consisted of (60) items that measured the attitudes of faculty members at Al-Balqa Applied University in all its affiliated colleges towards using (7Es) in teaching, distributed over four axes as follows:

The first axis: the attitudes of the faculty member towards the seven-year cycle of learning in teaching (15) paragraphs.

The second axis: the attitudes of the faculty members towards the importance of (7Es) for them (15) paragraphs.

The third axis: attitudes of faculty members towards the importance of (7Es) for university students (15) paragraphs.

The fourth axis: Obstacles to using (7Es) in teaching at Al-Balqa Applied University, especially the educational departments, (15) paragraphs.

After preparing the questionnaire in its initial form, the indications of its validity and reliability were ascertained as follows:

The accuracy of the survey

The questionnaire was presented to (10) members of the teaching staff in the faculties of education in Jordanian universities, to verify its suitability to achieve the objectives of the current study, the accuracy of the scientific and linguistic formulation of the questionnaire's paragraphs, the extent to which each paragraph belongs to the axis under which it falls, and the modification of what they deem appropriate, whether by deletion or addition or reformulation, and table (2) shows the opinions of the arbitrators about the paragraphs of the questionnaire, and thus the number of paragraphs became (40) paragraphs.

Table 2
 The opinions of the arbitrators in terms of the number of spelling errors, paraphrasing and phrases that were deleted and added

Axis	Before amendment	Spelling Errors	Errors Percentage	Paraphrase	Wording Ratio	Deleted Phrases	Percentage of the deleted phrases	Added Phrases	Percentage of added phrases	Final paragraphs
First axis	15	1	6.67%	1	6.67%	1	6.67%	1	6.67%	14
Second axis	15	1	6.67%	1	6.67%	1	6.67%	0	0%	14
Third axis	15	1	6.67%	1	6.67%	1	6.67%	1	6.67%	14
Fourth axis	15	1	6.67%	1	6.67%	1	6.67%	0	0%	14
Total	60	4	6.67%	4	6.67%	4	6.67%	2	3.33%	56

Internal consistency validity:

The validity of the internal consistency of the questionnaire was confirmed by calculating the correlation coefficient between the degree of each paragraph in the questionnaire and the total score of the axis to which it belongs, after applying it to an exploratory sample consisting of (25) members of a body in the departments of education in the faculties affiliated with Al-Balqa Applied University, from outside the sample of the study, and Table (3) shows the results.

Table 3
 Correlation coefficients between the degree of each paragraph in the questionnaire and the total degree of the axis to which it belongs.

First axis	Second axis	Third axis	Fourth axis
Correlation coefficient/ Paragraph Number	Correlation coefficient/ Paragraph Number	Correlation coefficient/ Paragraph Number	Correlation coefficient/ Paragraph Number
10.831**	11**0.750	21**0.845	31**0.896
20.841**	12**0.828	22**0.701	32**0.776
30.866**	13**0.815	23**0.684	33**0.794
40.801**	14**0.851	24**0.596	34**0.889
50.663**	15**0.791	25**0.704	35**0.853
60.893**	16**0.857	26**0.708	36**0.836

70.827**	17**0.841	27**0.742	37**0.922
80.858**	18**0.625	28**0.776	38**0.773
90.796**	19**0.860	29**0.773	39**0.875
100.847**	20**0.771	30**0.827	40**0.705

*Level of indication at (0.05)

**Level of indication at (0.01)

It is evident from Table (3) that all the paragraphs of the questionnaire axes have statistically significant correlations with the total score of the questionnaire; The correlation values ranged between (0.596-0.922), which are statistically significant values at the significance level (0.01); This indicates the consistency of the questionnaire items. The correlation coefficient was also calculated between the total score of each of the questionnaire's axes and the total score of the questionnaire and able (4) shows the results.

Table 4
 Correlation coefficient between the score of each paragraph and erasure

Questionnaire axis	The correlation coefficient between the degree of each paragraph and the axis
The role of the seven-cycle learning model in teaching	901
The importance of the seven-cycle model for the faculty member .	918
The importance of the seven-cycle model for the undergraduate students	920
Obstacles of using the seven-cycle model in teaching	931

Table (4) indicates that the correlation coefficients between the degree of each paragraph and the axis ranged between (0.931-0.901), which are statistically significant values at the significance level (0.01); Which indicates the consistency of the paragraphs of the questionnaire the axis.

Questionnaire stability:

The stability of the questionnaire was confirmed using Cronbach's alpha equation after it was applied to an exploratory sample from outside the study sample consisting of (25) faculty members in the educational and basic departments in faculties affiliated with Al-Balqa Applied University. Table (5) shows the stability coefficients using Cronbach's alpha equation.

Table 5
 Correlation coefficient between the score of each paragraph and the axis.

Survey axis	Stability coefficient
The role of the seven-cycle learning model in teaching	98
The importance of the seven-cycle model for the faculty member .	98
The importance of the seven-cycle model for the undergraduate students	96
Obstacles of using the seven-cycle model in teaching	99

Table (5) indicates that the reliability coefficients of the questionnaire domains ranged between (0.99-0.96); Which indicates that the questionnaire has a high degree of stability.

Questionnaire correction

The responses of the sample members to the questionnaire items were estimated according to the "Likert Five-Scale" according to a scale of (5,4,3,2,1) to answer each item, then the weighted average was calculated based on the length of the category, then the trend was determined, and accordingly, The degree of obstacles was determined, as in Table (6).

Table 6.
 Attitudes, response degree, weighted average estimate, and degree of approval

Trend	Response degree	Weighted average estimate	Degree of approval
Strongly agree		From (1-1.79)	Very low
Agree		From (1.80-2.59)	Low
Not sure		From (2.60-3.39)	Medium
Disagree		From (3.40-4.19)	High
Disagree strongly		From (4.20-5)	Very high

Statistical processing:

The data were analyzed using the statistical software package for social sciences (SPSS), where percentages and arithmetic averages were used to calculate the responses of the study sample members on the axes of the questionnaire paragraphs, the standard deviations to calculate the extent of dispersion of the responses for each paragraph of the questionnaire, and the t-test to find differences between the responses of a sample. The study by gender variable, and one-way analysis of variance to find differences between the responses of the sample members according to the gender variable.

Study results and discussion:

Results related to the first question: What are the attitudes of faculty members at Al-Balqa Applied University towards (7Es) in teaching? To answer and discuss this question, the arithmetic averages and standard deviations of the responses of the sample members were calculated on the first axis of the questionnaire, and then the percentage and degree of approval for each of the paragraphs of this axis were calculated, as in Table (7).

Table 7
 The results of the responses of the faculty members on the axis of (7Es) in teaching.

No	Phrase	M	SD	Rank	r	Grade
	I think using the seven-cycle learning course is more interactive than regular learning.	17	64		96	High
	I believe that using the seven-cycle learning course allow increased learning time.	10	53		89	High
	I am sure that the seven-cycle learning course contributes to changing the learning routine inside the classroom hall.	03	60		91	High
	I believe that using the seven-cycle learning course ensures that individual differences between students are considered.	12	68		97	High
	I think (7Es) ensures the perfect use of lecture time.	84	0)	94	High
	I think (7Es) promotes better use of modern information technologies.	18	61		94	High
	I believe that using (7Es) saves a lot of effort while explaining.	07	84		95	High
	The (7Es) modify negative trends towards different sciences.	05	88		97	High
	The (7Es) keep the impact of learning and retaining it for a long time.	08	74		94	High
)	I see cooperation as the basic principle in (7Es)	18	78		93	High
	Total	07	69			High

It is evident from Table (7) that there are positive attitudes to a high degree among faculty members towards (7Es) in teaching through the approval of the sample members with a high degree on all the axes of the paragraphs of this axis, the arithmetic mean of the sample responses reached (4.07) and a standard deviation (0.69), with a degree of High, and these results indicate that (7Es) contributes to achieving many goals, including: encouraging better use of modern information technologies, which is imperative in light of the dynamic development of these technologies and their impact on the teaching and learning process, and (7Es) contributes to making the process of Learning is more efficient and effective than regular learning; This is because the model is based on the principle of cooperation, as the model takes into account the mental abilities and individual differences among students, and one of the important roles of (7Es) is the optimal use of increasing the learning time, and achieving the survival and retention of the learning effect for a long time, which leads to saving a lot of effort in the explanation process. During the presentation of lectures, and the results of this study are consistent with what was reported by the study (Fateha and Al-Kilani, 2017) regarding the increase in the positive role of (7Es) in increasing students' interaction in the educational process, and (7Es) leads to a doubling of the learning time, and a departure from the usual picture. In which the student is a receiver of information for the lecture method, and this is consistent with what was indicated in the study of (Al-Sarayrah, 2017; Al-Jallad and Al-Dulaimi, 2018).

Results related to the second question: What are the attitudes of the faculty members at Al-Balqa Applied University towards (7Es) in teaching? To answer this question and discuss it, 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 for each of the paragraphs of this axis were calculated, and those items were arranged according to the results, as in Table (8).

Table 8
 The results of the responses of the faculty members on the axis of the importance of (7Es) for the faculty member

No.	Phrase	M	SD	Rank	r	Grade
1	(7Es) enables me to update scientific content continuously.	19	78		94	High
2	(7Es) encourages me to help and train the student to use his/her previous knowledge to build his/her new knowledge	92	80		95	High
3	The (7Es) encourage me to guide, motivate and help students.	80	10		97	High
4	I believe that the (7Es) enhance communication skills between me and students.	09	85		97	High
5	The (7Es) helps me to touch many topics related to the teaching content.	01	64		86	High
6	I think that (7Es) helps me apply various teaching strategies	18	78		94	High
7	The (7Es) enables me to employ modern communication technologies more effectively	17	78		89	High
8	The (7Es) help me evaluate students' performance more realistically	80	09		97	High
9	The (7Es) help me to expand in discovering new applications of skills and process concepts and link them to other concepts.	85	76		90	High
10	I think that (7Es) modifies and change some misconceptions of concepts among students	79	09)	97	High
	Total	98	82			High

It is evident from Table (8) that there are positive attitudes to a high degree among faculty members towards the importance of (7Es) for them, through the approval of the sample members with a high degree on all the paragraphs of this axis; The arithmetic means as a whole of the sample responses reached (3.98) and a standard deviation (0.82) with a high degree. These results indicate the importance of (7Es) for a faculty member; The use of the model requires constantly updating the scientific content, updating various teaching strategies appropriate for content, activities and training, employing modern communication techniques in lecture halls more effectively, and enhancing communication and interaction skills between faculty members and students. This result is consistent with the results of the study (Fatiha and Al-Kilani, 2017; Fadl, 2020; Ezzo and the Army, 2009), which indicated that this model contributes to increase interaction between students and teachers, which leads to a positive role for the learner in the educational process.

Results related to the third question: What are the attitudes of the faculty members at Al-Balqa Applied University towards the importance of (7Es) in teaching for university students? To answer this question and discuss it, the arithmetic averages and standard deviations of the responses of the sample members were calculated on the third axis of the questionnaire, and the percentage and degree of approval on each of the paragraphs of this axis were calculated, and those items were arranged according to the results, as in Table (9).

Table 9
 The results of the responses of the faculty members on the importance of the seven-year learning cycle model for university students

No.	Phrase	M	SD	Rank	r	Grade
1	I think students are increasingly integrated into activities and training within the classroom environment.	18	78		93	High
2	I think (7Es) helps students build knowledge themselves and do not receive it directly from the teacher.	80	09		96	High

I believe that (7Es) helps develop problem-solving skills among students.	09	85	95	High
I think that (7Es) improve students' academic achievement.	39	85	54	High
I think (7Es) provide complete freedom for the students to choose their place, time and speed .	18	78	93	High
I see that (7Es) helps develop different thinking skills among students and pushes them towards logical thinking.	26	74	73	VeryHigh
I think (7Es) provide immediate feedback to students during lectures.	75	07	95	High
(7Es) enables students to gain self-learning skills and continuous learning.	84	79	87	High
(7Es) benefits in the joy of discovery among students, especially when they face natural phenomena that help them expand their knowledge in formulating hypotheses and prediction.s	84	0	96	High
(7Es) introduces the scientific content according to the survey method from part to all.	18	61	85	High
Total	05	75		High

It is evident from Table (9) that there are high trends among faculty members towards the importance of (7Es) for university students. The arithmetic means of the sample responses reached (4.05), standard deviation (0.75) and a high degree except paragraph (26) which states, "I see that the seven-cycle learning cycle model helps in developing students' different thinking skills and pushes them towards logical thinking." It was approved at a degree of (Very high) and with an arithmetic mean (4.26) and a standard deviation (0.74), and paragraph (24) which states, "I believe that (7Es) improves students' academic achievement." It was approved at a (medium) degree with an arithmetic mean of (3.39) and a standard deviation (0.85), and these results indicate that the model for university students helps them in developing their different thinking skills and pushes them towards logical thinking skills. Because strategies that are based on thinking, research and investigation have an impact on developing the types of thinking among students (Safi El-Din, 2014). It provides them with complete freedom to choose the place and speed of their abilities and capabilities, and work to increase students' integration and interaction with content, activities and exercises within the lecture hall according to the investigation strategy from part to all, in addition to creative problem-solving skills, as the application of (7Es) gives them skills Self-learning, continuous learning and the joy of discovery, and these results are consistent with what was shown by the results of many previous studies, including (Al-Sarayra, 2017; Al-Jallad and Al-Dulaimi, 2018; Fatiha and Al-Kilani, 2017, Al-Hasanat and Abu Lum, 2017; Ezzo and Al-Jaish, 2009) given that (7Es) depends largely on the central and important role of students in preparing scientific materials and reviewing them before they come to the lecture halls, which gives them self-learning and continuous learning skills, active integration with educational content, and exploitation of their energies in understanding and reconnaissance and practicing different thinking processes, and problem-solving skills that confront them. During the implementation of various learning activities and exercises, and activating their role in their interaction with the experiences they face, all these stages and steps in this strategy can lead to the development and increase of academic attainment.

Results related to the fourth question: What are the obstacles to using (7Es) in teaching at Al-Balqa Applied University? To answer this question and discuss it, the arithmetic averages and standard deviations of the responses of the sample members were calculated on the fourth axis of the questionnaire, and the percentage and degree of approval for each of the paragraphs of this axis were calculated, and the order of those paragraphs according to the results, as in Table (10).

Table 10.
 Results of the responses of faculty members on the axis of obstacles to using (7Es) in teaching.

No.	Phrase	M	SD	Rank	R	Grade
1	I think (7Es) is not suitable for all study majors.	22	05	96		Very high
2	I think it is hard for me to produce educational activities with high-quality artistic abilities.	23	78	98		Very high
3	I think using (7Es) may increase my tuition burdens.	40	72	96		Very high
4	I feel that the use of the (7Es) may take students' minds	32	77	96		Very high

	away from the educational content.				
5	I see that the use of the (7Es) may lead to students' reluctance to attend lectures.	31	77	95	Very high
6	I think that using the (7Es) requires elaborate preparation and planning that is difficult for some untrained teachers.	37	73	95	Very high
7	I think that employing the (7Es) in teaching requires material capabilities of materials, tools and devices to implement the activities included in it, especially in the exploration and expansion stages.	41	59	96	Very high
8	The content is cluttered with concepts and facts that make their use confusing for the teacher.	21	83	94	Very high
9	The teaching requirements of the (7Es) outweigh the lecture time.	28	82	97	Very high
10	The presence of skills within the course that, according to the (7Es), require more than one period to implement its activities.	26	74	96	Very high
	Total	30	78		Very high

It is evident from Table (10) that the responses of the study sample about the questionnaire statements for this axis all came in determining the degree of obstacles faced by faculty members towards using (7Es) in teaching as (very high), and the total average of the axis statements was equal to (4.30) and deviation Normative (0.78), and the general degree of obstacles for the axis phrases (very high), and these results indicate that several obstacles prevent the use of (7Es) in teaching, and the most prominent of these obstacles are according to the rank of the arithmetic mean: the difficulty of employing (7Es) in teaching. Because it requires material capabilities of materials, tools and devices to implement the activities included in it, especially in the exploration and expansion phases, and that the use of (7Es) in teaching may increase the teaching burdens assigned to a faculty member by the university or the college or department administration, as it needs preparation and planning. It is very difficult for some new and untrained teachers, and one of the other obstacles that came in the responses of the sample members is the overcrowding of the content of concepts, facts, principles and theories that makes their use among the sample members. A large number of faculty members is confusing, and students' minds may be distracted from the scheduled educational content, which may increase the teaching burden assigned to a faculty member, and the model requires additional time that exceeds the time of the lecture, with some not being able to produce educational activities. Using educational videos with high-quality technical capabilities, which may not be available to a large number of faculty members, and it is known that the success of implementing a particular course is linked to providing a stimulating and supportive educational environment for its implementation, and this result is consistent with what was indicated by the study (Bakhit and Abdul Karim, 2017) about the job burdens placed on the teacher, which may limit her application of those strategies, and the weakness of providing the appropriate environment for the implementation of the strategy.

Results related to the fifth question: Are there statistically significant differences between the average responses of faculty members towards the use of (7Es) in teaching due to the gender variable? To answer this question, a t-test of two independent samples was used to identify the significance of the differences between the average responses of faculty members at Al-Balqa Applied University towards using (7Es) according to the gender variable, and table (11) illustrates these results.

Table 11.

The results of the "t" test for the significance of the differences between the average responses of faculty members towards (7Es) according to the gender variable

Questionnaire axis	Gender	n	M	SD	df	t	P value
Learning Course (7Es) in Teaching	Male	140	4.17	0.51	13	522	005
	Female	85	3.90	0.89			
The Importance of Learning (7Es) for a Faculty Member	Male	140	4.11	0.62	13	210	002
	Female	85	3.76	1.03			
Importance of Learning (7Es) for Undergraduate Students	Male	140	4.18	0.53	13	544	000
	Female	85	3.83	0.98			
Barriers to Using the Learning Cycle (7Es)	Male	140	3.46	1.02	13	448	015
	Female	85	3.09	1.19			

It is clear from Table (11) that there are no statistically significant differences between the average responses of faculty members towards the use of (7Es) according to the gender variable, for all study axes. (7Es) in teaching, and its importance for the work of the academic teacher and university student, in addition to; on the gender agreement of the obstacles that prevent the use of (7Es) on a large scale in university teaching.

Conclusions:

None of the previous studies dealt with the obstacles to applying (7Es) in public and private universities, within the limits of the researcher's knowledge.

It is clear from previous studies that (7Es) is of interest to many researchers, which prompted the researcher to investigate the trends towards (7Es) and the obstacles to its application at the university level in the Hashemite Kingdom of Jordan, from the point of view of the faculty members at Al-Balqa Applied University.

The agreement of the study sample on the difference in gender and academic rank that there are special obstacles to using (7Es) in the field of teaching.

Recommendations:

In light of the results of the study, the following recommendations can be made:

1. Providing an appropriate learning environment to implement (7Es), and removing all technical, material and human obstacles that prevent its use in teaching at all academic levels at the university for both students and faculty members.
2. Allow sufficient and appropriate time to help students implement (7Es) with all its elements.
3. The necessity of the university to continuously develop the construction of study plans in a manner appropriate to the use of (7Es) to facilitate research and investigation in a practical way to achieve the greatest degree of interaction with this type of education model.
4. Conducting studies dealing with the necessary training needs of faculty members in the educational and basic departments at Al-Balqa Applied University in the field of using (7Es) in teaching on other variables such as academic rank and years of experience.

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