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The Effect of Semantic Feature Analysis (SFA) Strategy on Biological Self-Efficacy and Secondary School Students' Achievement of Biology

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ABSTRACT

The research aims to examine the influence of the semantic feature analysis (SFA) strategy on biological self-efficacy and achievement in biology for secondary school male students. The researchers adopted the experimental approach with equivalent groups. A post-test was utilized for the biological self-efficacy scale and the biology subject achievement. The results showed that the experimental group's performance was greater than that of the control group in each of the achievement tests and the biological self-efficacy scale. Thus, the two null hypotheses in the current research were rejected. The researchers concluded that the semantic feature analysis (SFA) strategy has a significant impact on students' academic achievement and biological self-efficacy.

1. Introduction

Reading and mastering its skills is the natural gateway to school learning; It is the learner's means of studying all fields of knowledge, including scientific content, research methodology, and thinking. It is the tool by which the learner uncovers the hidden meanings of scientific books, explores the depths of meanings and connotations of scientific concepts, and learns scientific facts, principles, laws, and theories. Therefore, understanding the subject is based on building a complete and consistent mental representation that is constructed from the information provided by words organized into sentences and phrases. The more the learner masters reading skills and

possesses reading strategies, the more his ability to learn the cognitive domain in which he practices reading is formed. There is no doubt that weak reading ability negatively affects learning all school subjects at any stage of education.

As the student progresses through middle school and moves from one class to another, the circle of new biological concepts will expand and will increase in number and difficulty. It may be easy for a student to learn some concepts while it may be difficult for him to learn others, so he needs to focus and organize his learning. Many struggling students not believe in their success in school (Brophy, 1998; Pajares, 2003), convinced that they will fail in school and study. In other words, their self-efficacy for the study is

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low—as described by Bandura (1997)—their belief that they can organize and execute the courses of work required to complete specific academic tasks— is low (Margolis & Patrick, 2006).

The results of Bandura (1977) showed that the higher the self-efficacy, the more they are able to succeed in performing work and thus increase their academic achievement. Moreover, this was confirmed by the results of (Firmansyah et al, 2018) study -as self-efficacy has a clear indirect impact on academic achievement and students' results in biology. Self-efficacy is a person's belief in his ability to do something, and this belief will increase motivation, Motivation will make a person diligent and try to do his best to achieve maximum results and thus raise his achievement.

And (Firmansyah et al, 2018) mentioned that Çetin and Aşkun (2018) found that good student performance results when motivation is high, This will be in the form of good educational outcomes, because motivation acts as a mediating variable between self-confidence and students' learning outcomes. Jiang, Song, Lee, and Bong (2014) stated that Self-efficacy is a significant predictor of student learning outcomes in Korean schools. The study (Ari & Sadi, 2019) also confirmed that one of the most important factors affecting academic achievement is Self-efficacy.

Therefore, it is necessary to find teaching strategies that help increase self-efficacy and thus increase students' achievement. Zimmerman (1989) confirmed that among the benefits of the social cognitive approach to self-regulated academic learning, identified by educational psychologists, there is a feature defined by two main processes: Self-regulated learning is achieved through both: the individual's perceptions of his/her self-efficacy and use of organized strategies. Their relationship to students' motivation and academic achievement can be explained. To the extent this approach makes the self-regulated learning processes of students observable and trainable through specific experiences, it should be useful in guiding academic analysis.

(Baldwin, Ford, & Redance, 1981; Johnson & Pearson, 1984) have confirmed that the semantic feature analysis strategy is a strategy for helping students understand the meaning of words. (Target, 2006). It helps enhance students' ability to be aware of words and improves their reading and writing skills when used with illustrations. (Hussein & Mohammed, 2022).

Using semantic feature relationships, such as antonyms and synonym pairs, multiple meanings, and forming short sentences, will help them memorize words and concepts. This is in line with Fajrah's (2019), showed that using semantic features makes the meaning of concepts clearer and easier to remember by helping students see how they relate to and distinguish from other words in the set. Nation (2000) in Fajrah (2019) indicated that one of the reasons for using the SFA strategy is that it requires less effort from students to learn the concepts, and it is easier to retrieve the words associated with them from memory. It also helps students see how knowledge is organized and differentiated from each other, as it makes the meaning of words clearer. This strategy reflects the way this information is stored in the brain. When this strategy is applied in academic subjects, it makes the student remember it easily and makes the classroom atmosphere more attractive (Dwihastuti, 2022).

Subsequently, this will increase students' confidence in themselves and their ability to complete the academic tasks assigned to them in the biology subject, this will lead to a significant increase in their academic achievement, which is the criterion for their transition to a new class. Therefore, using the SFA strategy in biology is an attempt to raise students' self-efficacy and thus raise their academic achievement, because it has proven its effectiveness in teaching languages and raising the achievement of scientific concepts (Salam & Ghazi , 2008), and raising linguistic ability and improving vocabulary (Al-Jubouri & Al-Tamimi 2014, Fajrah 2019, Hussein & Mohammed 2022, Dwihastuti 2022, Amer 2002). Therefore, this research will experiment with this strategy in biology, as it has not been applied before in teaching science in general and biology locally

according to the researchers' acquaintance of previous local studies, and no study was found on the effectiveness of biological self-efficacy.

Biology is a vital and necessary subject in an individual's life because of its direct relationship to his life, lifestyle, and health, Especially the third middle school subject "Man and His Health" because it focused on establishing the basics about the human body. After the Ministry of Education announced the success rates for the academic year 2022/2023, it became clear that the achievement of the biology subject for the first round was the second lowest percentage among the subjects studied. Most recent studies in the educational field have also confirmed the weak achievement in biology for the third intermediate class, such as the study (Al-Shahmani 2013, Al-Issawi 2015, Al-Abbadi 2022). (Hassan, 2017) confirmed that the superficial, in-depth and unorganized study method in teaching is one of the factors affecting the level of academic achievement of students, and this is what was confirmed by the aforementioned studies.

According to Bandura's theory of self-efficacy, low self-efficacy causes motivational problems. If students believe they cannot succeed on specific tasks (low self-efficacy), they will try to perform it superficially, give up quickly, or avoid it. Low self-efficacy hinders academic achievement because over time it gives him a feeling of failure and inability to perform tasks and creates school difficulties including low classes and failure on high-stakes tests (Margolis, & McCabe, 2006). This was confirmed by a number of biology teachers after interviewing them, where a clear decline in self-efficacy was observed, accompanied by poor achievement among students. This was confirmed by the study (Walid, 2022), while (Firmansyah, et. Al 2018, Nurwendah & Suyanto 2019, Ari & Sadi 2019, Nurwendah & Suyanto 2019) also confirmed the existence of a relationship between self-efficacy and achievement in biology. Several studies have been conducted to measure the self-efficacy of students in different academic majors, and the effect of some diverse teaching strategies and methods in raising their self-efficacy and

academic achievement, such as the study of (Salwa et al, 2015).

So the importance of the current research can be summarized in: this research deals with two important variables: achievement and biological self-efficacy. Achievement is an important variable, Success in it is a condition for students to move through the levels of the academic stages. the Ministry of Education suffers from a noticeable and continuous decline. As for self-efficacy is one of the most important reasons that lead to an increase or decrease in academic achievement. It is in line with the modern global trend of following the social cognitive approach in education and employing appropriate strategies to raise the level of self-efficacy among students to face difficult tasks with confidence that shows mastery, control, and distinction.

2. Literature Review

2.1. Semantic Feature Analysis "SFA" Strategy

It is a strategy used by students to extract keywords - basic words - in texts to know their meanings and organize them in a matrix that is distributed to students during the lesson to help them understand and comprehend the text by stimulating their previous knowledge of these words and the relationships that connect them, then discussing them among the students themselves and between the students and the teacher to arrive at their correct meanings (Al-Jubouri & Al-Tamimi, 2014).

Pearson & Johnson (1984) stated that semantic analysis is a technique that helps students build classifications and associations to remember new concepts or terms (Olson & Homan, 1993). The idea of the strategy is based on designing a model consisting of a side column containing (words, concepts, numbers, drawings, sentences) and a row that also contains semantic words, numbers, or sentences. The student links or matches between the column and the row. This strategy can be applied at the beginning, middle, or end of the class (AmboSaidi & Al-Hosaniyah 2016).

(Amer, 2002) in (John & Kate, 2018) stated that semantic feature analysis is a powerful strategy that mimics the way the brain organizes information. Semantic feature analysis allows

the learner to identify the semantic connection between words, i.e. how words belong to the same semantic group when they share some features. Furthermore, (Brinton & Donna, 2010) thought that the semantic features are universal, not language-specific, it is a part of the cognitive and perceptual system of the human mind. Anders and Bos (1986) explained that semantic analysis of words describes the semantic signs of a word and its components by identifying the concepts that most express the linguistic method. (Hussein & Mohammed, 2022).

Depending on (Target 2006, Salam & Ghazi 2008, AmboSaidi & Al-Hosaniyah 2016) the strategy steps can be summarized as follows:

- 1- The teacher explains the lesson topic to the students in any way he deems appropriate.
- 2- He explains the idea of the strategy, then draws on the board or distributes the diagram to the students so that they can answer it individually or in groups, Where the student combines the concept with the characteristic that indicates it.
- 3- After the students finish answering, the teacher discusses their answers with them, but preferable not to provide them with direct feedback, Rather, the student places a question mark in the space that indicates the concept if he is unsure of his answer, then directs them to read the text of the topic in the textbook and encourages them to search for the missing information in the matrix.

2.2. Self-efficacy

In (Qutami, 2005) Banadora 1977 pointed out that self-efficacy is the individual's belief in his ability to organize, manage and control his performance in certain situations. This state usually appears in new, stressful situations that the learner faces, And (Zimmerman,1995) described self-efficacy as a judgment and assessment related to the learner's thoughts and beliefs about himself and his ability to perform academic tasks required of him - successfully, It includes self-evaluation, judgment of ability, and self-fulfillment to perform tasks according to what the learner expects. (Zimmerman, 1989) stated that social cognitive theorists assume that self-efficacy is a main variable that affects self-regulated learning. In support of this assumption,

it was found that there is an association between perceptions of self-efficacy with aspects of the key feedback loop, which include: learning strategies that students use and self-monitoring. Students with high self-efficacy showed more efficient learning strategies (Kurtz & Borkowski, 1984) and greater self-monitoring of their outcomes (Diener & Dweck,1978; Kuhl 1985, Pearl, Bryan, & Herzog,1983) -than students with low self-efficacy, as well as, they have found that students' self-efficacy are positively related to outcomes of learning such as perseverance in performing tasks (Zimmerman & Ringle, 1981), selecting the task (Bandura & Schunk,1981; Zimmerman,1985), effective activities of study (Thomas, et al 1987), acquisition of skill (Schunk,1984), and academic achievement (Thomas et al., 1987). (Zimmerman, 1989).

Bandura et al., 1987; Krueger & Dickson 1993 confirmed that an individual's perception of his self-efficacy in turn affects his assessment of his ability to achieve a certain level of achievement , It also determines the amount of effort the individual will exert, and the degree of perseverance he will exert to face the problems and difficulties that may hinder him when striving to achieve his goals and tasks, Thus, self-efficacy affects the behavior of initiative, perseverance and achievement of this individual. (Al-Mazroa, 2007).

Bandura (1994) has identified characteristics and traits of individuals with a strong and weak sense of self-efficacy, as shown in Table 1

2.2.1. Academic self-efficacy

(Chemers, et al 2001) defined it as People's self-confidence in situations that require academic study as well as the ability to use effective cognitive strategies, effectively manage the environment of learning, and organize their performance for learning. (Ari & Sadi, 2019)

2.3. Achievement

The extent to which the learner has achieved educational objectives as a result of his exposure to educational experiences, estimated in degrees. (Maysam et al,2024)(Yousif, et al,2024)

3. Methodology

3.1. Experimental Design

The true experimental design with equivalent groups and a post-test for the experimental and control groups was chosen, as it is required to achieve equivalence between the two groups in

this type, and the (SFA) strategy represents the independent variable and academic achievement and the scale of biological self-efficacy are the dependent variables, as shown in the Table (2).

Table 1: Characteristics of individuals who have a strong and weak sense of self-efficacy.

	Strong sense of self-efficacy	A weak sense of Self-efficacy
1	They see difficult problems as tasks to be mastered.	They avoid difficult tasks.
2	They have a deep interest in the tasks they are involved in	They believe that difficult tasks are beyond their abilities
3	They have a strong sense of commitment to their interests and activities	They focus on negative outcomes and personal flaws
4	They recover from setbacks and frustrations quickly	They lose confidence in their abilities quickly.

Note: (Hajjat, 2010).

Table 2: Experimental design of the research.

Group	Equivalence	Independent Variable	Dependent Variable	Post-test
Experimental	1- Intelligence	Teaching Using SFA Strategy	- Achievement	- Achievement
	2- Age		- Biological Self-Efficacy	- Biological Self-Efficacy
	3- Previous Knowledge			
	4- Previous Achievement			
Control		Teaching Using Traditional Method		

The research community includes all third-class students in secondary school affiliated with the General Directorate of Education in Baghdad / Al-Rusafa/1, for the academic year 2023/2024. As for the research sample, two classrooms (A and B) were chosen randomly. (A) was randomly selected as an experimental group, and thus (B) was considered a control group. The number of students in the two classrooms was (43) students, as the experimental classroom contained (22) students

and the control classroom contained (21) students.

3.2. Control Procedures and Internal and External Integrity:

A number of factors related to the research procedures were controlled, which may affect the dependent variable: (intelligence, chronological age, previous achievement), in order to ensure the integrity of the research and that side factors do not affect its results, as shown in Table 3:

Table 3: The mean, standard deviations, and t-test values for the two research groups.

Variable	Group	No. of Students	Mean	Std. deviation	t-test value		Statistical significance
					Calculation	Tabular	
Intelligence	Experimental	22	22,772	7,652	0,337	2.00	Not significant at 0.05 level
	Control	21	22,000	7,368			
Chronological Age	Experimental	22	178,454	9,912	0,580	2.00	Not significant at 0.05 level
	Control	21	176,904	7,354			
Previous Achievement	Experimental	22	76,181	8,392	1,052	2.00	Not significant at 0.05 level
	Control	21	73,381	9,069			

As for the external integrity of the research, the researchers trained the teacher of biology subject at the school to teach both groups

herself, to ensure that students were not affected by personal characteristics and teaching styles when teachers were changed. Five chapters

from the biology book for the third intermediate class were studied equally for both groups to ensure that students are exposed to equal biological information, and the period was equal for both groups, which is the second semester of the academic year 2023/2024.

Coordination was made with the school administration to teach both groups on the same days to ensure equal class times for both groups Periodically, and the two groups were taught in the biology laboratory to ensure that the educational environment and the surrounding

conditions were equal for both groups in terms of physical characteristics such as lighting, ventilation, quietness, distance from noise, and the size of the classroom. It is worth noting there was no waste in the research sample.

3.3. Preparing research requirements

A- Determining the study subjects:

Which is the last five chapters of the biology book for the third middle class for the academic year 2023-2024, has been determined for the second semester, as shown in Table (4).

Table 4: biology chapters in the second semester

Semester	Chapters	Topics
Second semester	Eight	Reproductive System
	Ninth	Nervous System
	Tenth	Sense Organs
	Eleventh	Secretion
	twelfth	Immunity

B- Preparing teaching plans:

Based on the content of the biology book for this class and according to the behavioural objectives, after analysing the content, tables were designed for the semantic features analysis

strategy, and they were included in the teaching plans. plans were prepared for each of the two groups (experimental and control), with (16) plans for each group. Table (5)(6) shows an example of using semantic feature analysis.

Table 5: Example 1 for using SFA strategy.

Q/ Fit the following effects on the fetus and the pregnant mother to their causes:					
	Effects	Drugs	Smoking	Alcohol	Infertility
1	Affects the nervous system	√			
2	High blood pressure of the mother and miscarriage of the fetus when taken with medications		√		
3	Death of the fetus due to tuberculosis or AIDS	√			
4	The man's inability to form sperm capable of survival				√
5	Its effect is very bad on the liver, digestive system and nervous system			√	

Table 6: Example 2 for using SFA strategy.

Q / Fit the Phrases:							
Phrases		Spinal nerves	Cranial nerves	Cerebrum	Cerebellum	Medulla Oblongata	spinal cord
1	12 pairs of sensory, motor and mixed nerves		√				
2	45 cm						√
3	31 pairs of sensory and motor fibers	√					
4	two hemispheres				√		
5	Four lobes			√			

3.4. The Tools:

3.4.1. Biological self-efficacy scale:

The researchers built a biological self-efficacy scale, and consisted of (24) items, each item had five alternatives (always applies to me,

often applies to me, sometimes applies to me, rarely applies to me, never applies to me), After being presented to a number of experts and

specialized arbitrators and extracting validity and reliability, the scale became ready for application. As shown in Table (7).

Table 7: Biological self-efficacy scale.

	Items	Always applies to me	Often applies to me	Sometimes applies to me	Rarely applies to me	Never applies to me
1	I can complete extracurricular activities in biology accurately no matter how difficult they are.					
2	I have the ability to deal with biology assignments in an organized and effective manner.					
3	I have the ability to analyze biology topics in detail.					
4	I feel nervous when I am faced with a difficult biology topic.					
5	I can assess situations in biology with skill and accuracy.					
6	The difficult situations I face in biology make me feel tired and exhausted.					
7	I trust my ability to plan well for my biology studies.					
8	I feel bored and upset due to the annoying situations I face in biology.					
9	When I feel like I failed to complete a task in biology, I can regain my focus again and complete the task.					
10	I feel anxious and doubt my abilities when I start solving questions in biology.					
11	I set specific goals for myself in biology topics.					
12	I feel that my classmate excel in biology.					
13	I have the ability to use my information to understand biology topics.					
14	I enjoy reading difficult biology topics more than easy ones.					
15	I have the skills to understand difficult topics in biology					
16	I enjoy discussing disease topics in biology even if I make mistakes in some information.					
17	I am able to continue solving biology questions despite difficulties.					
18	I skip and pass difficult biology topics and choose easy topics when I study.					
19	I feel that I am able to distinguish between what I can and cannot understand in biology.					
20	I feel happy and satisfied when I show diligence in difficult biology topics.					
21	I keep trying to solve biology questions until I can get to the right answer even though I fail at first.					
22	I prefer simple activities instead of difficult ones in biology even if I don't like them.					
23	I feel hesitant to participate in any activity related to biology.					
24	I enjoy reading books and scientific videos related to biology.					

3.4.2. *Achievement test:*

It was built after determining the educational content represented by the last five chapters of the third-class secondary school book approved

in this academic year “Man and His Health” have been determined. The behavioural objectives were formulated, (220) behavioural objectives according to Bloom’s six levels

(remembering, comprehension, application, analysis, synthesis, and evaluation), According to it, (30) items were formulated based on the behavioural objectives and the specifications table prepared by the researchers in light of the content of the scientific subjects, behavioural objectives, and number of pages., with 24 multiple-choice items and 6 essay items. These items included the five specified chapters of the book.

The instructions for answering the test items were prepared, the instructions included a number of guidelines explaining how to answer the test items, the time limit for answering, and some precautions that must be taken into account before answering. The correct key and model answer for the objective and essay items were also prepared.

The face validity and content validity of the test were checked by presenting the test items with the behavioural objectives to experts and arbitrators specialized in biology sciences and teaching methods and to a number of

experienced biology teachers. Some items were rephrased and modified taking into account the opinions of the experts and arbitrators after calculating an agreement rate of (80%) or more, In light of the previous procedures, the achievement test became ready for application.

The test was applied to an initial pilot sample that included (24) students. The average time to answer the test was approximately (30) minutes. Then, the test was applied to (100) students, to analyze its items and verify its psychometric properties, after correcting the answer sheets, the test items were analyzed by taking the papers of the top 27% of the students' answers, which were represented by (27) students, to represent the upper group, and the bottom 27% of the student's answers, which were represented by (27) students, to represent the lower group, to find the items difficulty, discrimination power, effectiveness of wrong alternatives, and reliability. As table (8) shows, after conducting statistical analysis, the test is in its final form, as shown in Figure (1).

Table 8: statistical analysis of Achievement test items

Statistical analysis	Calculated	Standard	Recommended
Items Difficulty	(0.31-0.73)	(0.2-0.8)	keep it
Discrimination power	(0.25-0.78)	(-1, +1)	keep it
Effectiveness of wrong alternatives	all values were negative (-)	negative (-) values	keep it
Reliability	0.85	0.65 ≤	keep it

Figure (1): Steps of building achievement test

4. Results and Discussion

4.1. Biological Self-Efficacy

First hypothesis: “There is no statistically significant differences at the level of (0.05) between the mean scores of the experimental group who studied according to the "semantic feature analysis SFA" strategy and the mean of

the control group who studied with the normal way, in Biological Self-Efficacy Scale”

The results showed that there is a difference between the average scores of the students in the experimental group and the average scores of the students in the control group. By using the t-test for two independent unequal samples, the significance of this difference was tested, as shown in Table (9).

Table 9: The findings of the Biological Self-Efficacy Scale

Group	No. of individuals	Mean	St. deviation	T-test value		Significance	Freedom's degree
				Calculated	Tabular		
Experimental	22	69,318	9.301	2.243	2,00	Significant at the 0.05 level	68
Control	21	61.904	12.234				

It is clear from the table above that the calculated T-test value is greater than the tabular value at a significance level of (0.05) and a

degree of freedom of (68), meaning that the result is statistically significant in the direction of the experimental group. This means that the

biological self-efficacy of the experimental group is higher than that of the students of the control group. Accordingly, the first null hypothesis is rejected in favor of the

experimental group. This result conforms with (Salwa et al, 2015) and (Walid, 2022), that have shown improvement in self-efficacy because of using appropriate teaching strategies.

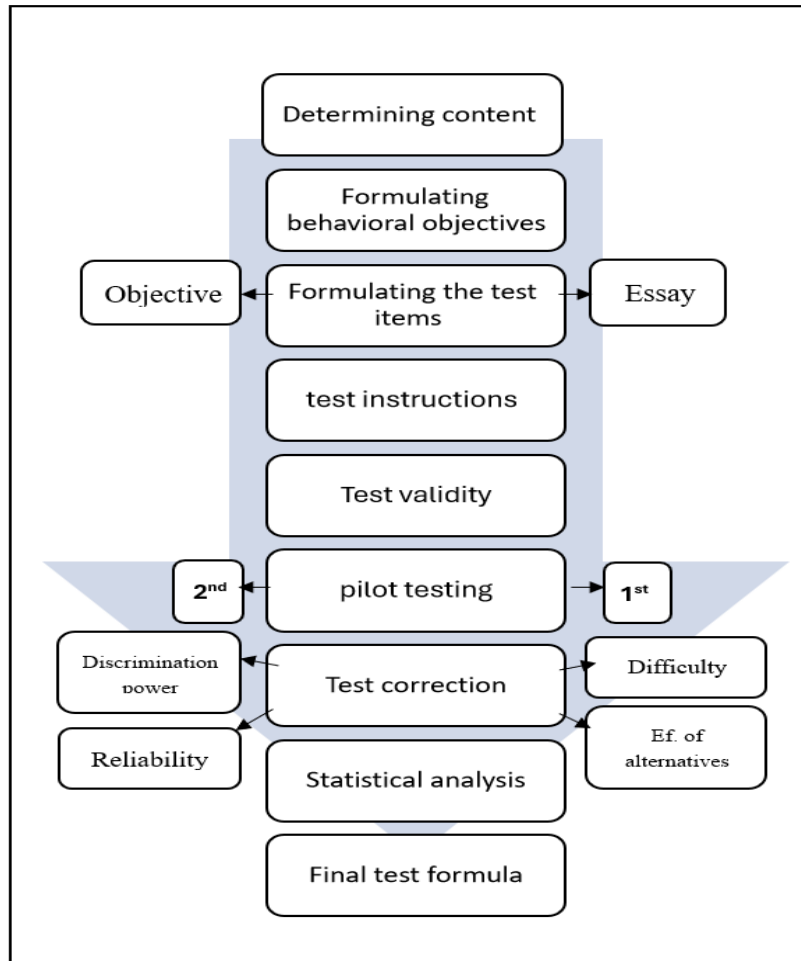


Figure 1: Steps of building achievement test.

4.2. Achievement

Second hypothesis “There is no statistically significant differences at the level of (0.05) between the mean scores of the experimental group who studied according to the "semantic feature analysis SFA" strategy and the mean of the control group who studied with the normal way, in the achievement test”.

The results showed that there is a difference between the average scores of the students in the experimental group and the average scores of the students in the control group. Using the t-test for two independent unequal samples, the significance of this difference was tested, as shown in Table (10).

Table 10: The mean, St. deviation and T-test value in the achievement test.

Group	No.	Mean	St.d	T-test value		Significance	Freedom's degree
				Calculated	Tabular		
Experimental	22	39,818	1,918	4,827	2,00	Significant at the 0.05 level	68
Control	21	35,428	3,722				

It is clear from the Table above that the calculated T-value is greater than the tabular

value at a significance level of (0.05) and a degree of freedom of (68), meaning that the

result is statistically significant in favor of the experimental group, which means that the experimental group students excelled. Therefore the second null hypothesis is rejected. This result conforms with (Salam & Ghazi, 2008), promotes the achievement of scientific concepts.

This strategy helped students activate multiple cognitive skills such as comprehensive, analysis, comparison, and synthesis, by having them do multiple activities that require them to read, summarize, design diagrams, and compare concepts from multiple aspects. This strategy hand to teach them how to learn and not just teach them the content of biology subject.

Increasing self-efficacy was a result of students' increased focus and engagement in learning the material and encoding information well. The strategy helped the students focus their attention and mental effort, which facilitated their information processing without information interference. It led to remembering and retrieving information and the ease of linking information together due to the correctness of its classification or linking it in Semantic features, which made the information become part of their cognitive structure. This came as confirmation of the research of (Bandura 1977) (Firmansyah et al, 2018) (Ari & Sadi, 2019).

5. Conclusions and Recommendations

In light of the previous results, it was concluded that the use of the SFA strategy in teaching biology to third-year middle school students was effective in raising biological self-efficacy and improving the level of academic achievement among the students in the research sample. This strategy gave students the opportunity to direct their efforts towards analyzing the biology subject more accurately

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and expanding their understanding and connection to the concepts included in the study topics, which raised their self-expectations about their performance in achievement tests.

Thus, the strategy had a direct and indirect effect on academic achievement and self-efficacy. This strategy helped students organize and classify new biological concepts, which increased their self-efficacy by promotes their confidence in achievement, which created motivation for them to accomplish daily tasks in biology, which had a positive impact on their academic achievement level. So, we recommend the necessity of training biology teachers on using the SFA strategy.

6. Suggestions

As a complement to the current research, we suggest to applying the strategy on female students. Conducting more studies on the effect of the SFA strategy on other variables such as reading motivation, motivation towards the subject, cognitive failure, and creative thinking (especially if the student is involved in preparing it). Conduct more studies to apply it to other educational stages such as the rest of the intermediate stages, preparatory stages, and the university stage, or apply it to know its effect on chemistry and physics, as it is a flexible strategy that suits scientific subjects.

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اثر استراتيجيات تحليل الدلالات اللفظية (SFA) على فعالية الذات الاحيائية وتحصيل طلاب المرحلة الثانوية في مادة الأحياء

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الكلمات المفتاحية:

الاستراتيجية
تحليل الدلالات اللفظية
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يوضح البحث تأثير استراتيجيات تحليل الدلالات اللفظية (SFA) على الفعالية الذاتية الاحيائية وتحصيل طلاب المرحلة الثانوية في مادة الأحياء. حيث اتبعت الباحثتان المنهج التجريبي ذا المجموعات المتكافئة، وأجري اختبار بعدي لمقياس الفعالية الذاتية الاحيائية وتحصيل مادة الأحياء. أظهرت النتائج تفوق المجموعة التجريبية على المجموعة الضابطة في كل من الاختبار التحصيلي ومقياس فعالية الذات الاحيائية، مما أدى إلى رفض فرضيتي البحث الحالي. وخلصت الباحثتان إلى أن استراتيجية تحليل الدلالات اللفظية (SFA) ذات تأثير في التحصيل الأكاديمي والفعالية الذاتية الاحيائية لطلاب الصف الثالث المتوسط.

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