

## Self-regulated Learning Strategies among Students of Faculty of Education for Pure Sciences/ Ibn Al-Haitham

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### Abstract

*The present study aims to identify self-regulated learning strategies among students of Faculty of Education for Pure Sciences / Ibn Al-Haytham by answering the following questions:*

- 1. Do students of Faculty of Education for Pure Sciences/ Ibn Al-Haitham have self-regulated learning strategies?*
- 2. Are there differences in self-regulated learning strategies according to the research variables: gender; males-females?*

**Key-words:** Learning Strategies, Students, Self-regulated.

### 1. Introduction

The present study is limited to the four level students of the Department of Chemistry at Faculty of Education for Pure Sciences/ Ibn Al-Haitham in Baghdad for the academic year 2020-2021). The correlative descriptive research method is adopted. The sample size from the basic research community is (250) Male and female students. The research sample is selected by stratified random sampling method. The research tool (self-regulated learning strategies scale) includes (51) items depending on (17) self-regulated learning strategies, which were the outcome of the efforts of the two scientists (Zimmerman and Pintrich). The strategies include recitation, using details, organizing or shifting, setting goals and planning, self-monitoring, meta-cognitive self-regulation, self-rewarding and visualizing the consequences of failure, stimulating interest, self-talk about mastery, self-talk about performance, Environmental control, seeking academic help, learning from peers, searching for information, time management, keeping blogs, notes, and records, and self-evaluation. The apparent validity of the scale was checked and the discriminatory power and

correlation coefficient of the paragraph score were checked. The degree of totality and the relationship of each strategy to the total score was checked depending on the (Alpha-Cronbach) coefficient which reached an average of (0.797). The scale was applied to the main research sample. The data was analyzed and treated statistically by adopting the (SPSS).

After applying the study tool to the research sample, the following results were obtained:

1. Students of Faculty of Education for Pure Sciences/ Ibn Al-Haitham have a high level of self-regulated learning strategies. All the calculated T-values for all strategies were larger than the tabular T-value (1.960) at a level of significance of (0.05) and a degree of freedom of (249).

2. There are statistically significant differences in some strategies in favor of females, such as the recitation strategy, and others for males, such as the planning strategy. Some strategies did not show statistically significant differences. As for the variable of the study level, some strategies appeared in favor of the fourth level students, such as the strategy of organizing and setting goals, meta-cognitive self-regulation, stimulating interest, and self-evaluation.

### **First: Problem of the Study**

The educational process has witnessed a radical change as a result of the technological development and knowledge explosion of this era. These changes or developments have imposed themselves on the educational process. Among these developments is the emergence of learning theories and educational strategies in the past few years that aimed at improving the learning process. Among the most important of these Strategies are self-regulated learning strategies. They are the modern trend in the educational process that primarily focuses on the learner in the educational process to face all challenges that impede his/her cognitive growth. Self-regulated learning strategies have become among the basic requirements agreed upon by those in charge of the educational process for an education that is characterized by continuity. Thus, in the last decades, self-regulated learning strategies received great attention by researchers. This was reinforced by a survey of the opinions of a random sample of (25) students of the Department of Chemistry at the Faculty of Education for Pure Sciences/ Ibn Al-Haitham on self-regulated learning strategies.

### **Second: Significance of the Study**

#### ***Theoretically:***

1. It is a response to modern scientific trends that call for the use of teaching strategies and models that make the student the focus of the educational process.

2. The present study sheds light on self-regulated learning strategies, which is a change from the traditional education path to one that achieves the maximum understanding of the subject and

contributes to regulating the learners' education, increasing their efficiency in order to achieve the desired goals, and contributing to the individualization of the learning process and transferring the responsibility of education to the learner. This relieves the burden that is on the teacher in order to achieve the best investment for both.

***Practically:***

1. Providing a tool that detects self-regulated learning strategies among students of Faculty of Education for Pure Sciences/ Ibn Al-Haitham.

2. It may help curriculum developers to pay attention to self-regulated learning strategies when developing curricula.

3. Urging learners to adopt self-regulated learning strategies in the learning process for lifelong learning.

**Third: Aims of the Study**

The present study aims to analyze self-regulated learning strategies among students of Faculty of Education for Pure Sciences/ Ibn Al-Haitham by answering the questions:

1. Do students of Faculty of Education for Pure Sciences/ Ibn Al-Haitham have self-regulated learning strategies?

2. Are there differences in self-regulated learning strategies according to the research variables: gender; males-females?

**Fourth: The scope**

***The present study is limited to:***

1. Objective limits

The present study is limited to (17) self-regulated learning strategies for students of the Department of Chemistry at Faculty of Education for Pure Sciences/ Ibn Al-Haitham.

2. Human limits:

The present study is limited to students of the Department of Chemistry, Faculty of Education for Pure Sciences/ Ibn Al- Haitham in all levels and for both genders.

***Fifth: Defining terms***

1. Self-Regulated Learning Strategies

A set of plans that help learners to successfully use cognitive, meta-cognitive, and motivational strategies in addressing and solving academic tasks. The strategies include a set of educational situations that students are exposed to while studying different academic courses,

whether inside or outside the classroom (Al-Fawzan, 2008: 9).The two researchers define them as plans that self-learners use in defining learning goals and setting the necessary plans to implement them by themselves and to monitor their own learning in order to be able to understand and comprehend the educational materials and apply them during the learning process.

## **2. Theoretical Aspects and Previous Studies**

Theories explaining regulated learning strategies

The social learning theory

In some educational literature, the social learning theory is called the observational learning theory, which emphasizes the continuous mutual interaction between behavior, knowledge, and the influence. (Al-Askari et al., 2012: 224).

### **Cognitive Constructivist Views**

As for the interpretation of the cognitive constructivist theory of self-regulated learning, it is multifaceted. Learners are supposed to build theories to organize the basic components of learning: self-sufficiency, strength and control, teaching and academic tasks. (Pintrich, et al., 1994).

### **Self-regulated learning strategies**

Many researchers have emphasized the importance of self-regulated learning strategies in the educational process and have supported what they have gone through with the evidence they have reached. (Wolters, 2003: 179-187).

## **3. Methodology of the Study**

### ***First: The approach***

The present study adopted the descriptive approach, because it is effective and it shortens time, effort, and resources. It shows the need to follow the appropriate research design (Kothari, 2004: 32). It is considered one of the most appropriate approaches that are used to study the correlational relationships between the research variables and to reveal the difference between them through a number of interrelated procedures such as data collection and analysis. (Brodens and Abbott, 2014: 100).

## **Second: Procedures of the Study**

### ***1. Community***

The community of the present study is determined by the students of the bachelor morning studies in the Department of Chemistry, Faculty of Education for Pure Sciences/ Ibn Al-Haitham, located in the province of Baghdad for the academic year (2020-2021). The original community consisted of (911) male and female students. The number of male students was (515), at a rate of (57%). The number of female students was (396), at a rate of (43%).

### ***2. Sample***

The sample of the present study included (250) male and female students, representing (27%) of the research community. The study sample was chosen in a stratified random manner from the students of the first-fourth levels, equally distributed between the first and fourth level students of the Department of Chemistry in the Faculty of Education for Pure Sciences/ Ibn Al-Haitham, University of Baghdad according to the male-female variable.

### ***3. Tool***

Scale of self-regulated learning strategies

The process of preparing any scale must pass through several basic steps:

#### 1. Defining the concept of self-regulated learning strategies

The definition of self-regulated learning strategies adopted in the present study is proposed by Rashwan (2006) as various organizational strategies used in processing, monitoring, managing time, requesting academic help when needed, having prior expectations for performance, and organizing the social and spatial learning environment. This helps the learner to be more effective in the learning process (Rashwan, 2006: 7).

#### 2. Identifying fields of self-regulated learning strategies

Fields of self-regulated learning strategies were identified with seventeen strategies as follows:

##### 1. Recitation

##### 2. Using details

It means finding a link between information and taking notes to clarify meanings.

##### 3. Organization and transformation.

##### 4. Setting goals and planning

5. Self-monitoring
6. Meta-cognitive self-regulation
7. Self-reward
8. Stimulating interest
9. Self-talk about mastery
10. Self-talk about performance
11. Environmental control
12. Requesting Academic Help
13. Learning from peers
14. Searching for information
15. Time management
16. Keeping blogs
17. Self-evaluation

#### ***4. Preparing the paragraphs of the scale***

After reviewing previous studies that dealt with the variable of self-regulated learning strategies, benefiting from them, and identifying the strategies that make up the scale. They are (51) paragraphs in the form of declarative statements distributed over seventeen strategies of equal importance, with (3) paragraphs for each strategy.

#### ***5. Presenting the paragraphs to the arbitrators (apparent validity)***

The paragraphs of the scale of self-regulated learning strategies were presented to (35) arbitrators from different disciplines of educational and psychological sciences from inside and outside the country.

#### ***6. Preparing the Scale Instructions***

The scale instructions have been prepared in a way that makes them easy to understand and clear for the respondents.

#### **Exploratory Experience**

On Sunday, 27/12/2020, the researcher applied the scale to a random sample selected from the research community, consisting of (50) male and female students, with (27) male students and (23) female students from the research community who are not from the main sample. The researcher explained the instructions to the students and gave them an illustrative example of how to answer and choose the appropriate alternative in answering the scale. Through the exploratory experiment of the scale.

The sample of the present study was selected on Sunday 3/1/2021 in a stratified random manner. The sample consists of (250) male and female students from the Department of Chemistry, representing (27%) of the research community.

A. The discriminatory power of the items of the self-regulated learning strategies scale requires a procedure

1. Correcting forms of the Scale of Self-regulated Learning Strategies for the statistical analysis.

2. Arranging the total scores obtained by the sample members in descending order from the highest score to the lowest score in the scale.

3. Selecting (27%) of the forms with the highest scores, and (27%) of the forms with the lowest scores as the best ratio in comparison between the two end groups in response. It is the maximum size and distinction. In light of this percentage, the number of forms in each group was (68) forms in each group.

4. Each paragraph of the scale was analyzed using the T-test for two independent samples. The calculated T-value was considered an indicator to distinguish the paragraph by comparing it with the tabular T-value that is equal to (2) at the significance level of (0.05) and the degree of freedom of (249). From conducting the statistical analysis process, it was found that all the paragraphs of the self-regulated learning strategies had greater calculated t-values than the tabular t-value.

B. The relationship between the paragraph score and the total score of the self-regulated learning strategies scale

The Pearson correlation coefficient was used to extract the correlation between the score of each item and the total score of the scale for the members of the statistical analysis sample, with a degree of freedom of (249).

C. The relationship between the score of each item and the strategy to which it belongs in the self-regulated learning strategies scale

Calculating the correlation coefficient between each paragraph and the total score of the strategy to which it belongs, using the Pearson correlation coefficient, it was found that all correlation coefficients are statistically significant when compared with the tabular value (0.161) at the significance level (0.05) and the degree of freedom (249) as in Table (1).

Table 1 - Correlation coefficient between the paragraph score and the strategy to which it belongs

Paragraph no.	Strategy name	Paragraph no.	Strategy name	Paragraph no.	Strategy name
	Recitation		Self-reward		Learning from peers
				10	0.265

1	0.357	22	0.674	17	0.226
31	0.723	25	0.463	43	0.714
34	0.675	28	0.719	Searching for information	
Using details		Stimulating interest		14	0.730
32	0.698	7	0.685	44	0.672
35	0.446	26	0.391	46	0.527
38	0.607	30	0.048	Time management	
Regulation		Self- talk about mastery		11	0.816
3	0.643	8	0.662	13	0.831
33	0.780	27	0.799	47	0.463
39	0.719	29	0.659	Keeping blogs	
Seating goals and planning		Self- talk about performance		45	0.777
2	0.707	20	0.564	50	0.766
37	0.560	41	0.760	51	0.747
40	0.750	42	0.728	Self-evaluation	
Self monitoring		Environmental control			
4	0.667	18	0.8.7	12	0.575
24	0.549	19	0.881	48	0.735
36	0.265	21	0.815	49-	0.712
Self-regulation		Requesting academic help			
5	0.534	9	0.874		
6	0.674	15	0.381		
23	0.643	16	0.332		

#### Scale Stability using Alfa Coefficient for Internal Consistency

The stability coefficient of self-regulated learning strategies was calculated. It is clear that the values of the stability coefficients of the self-regulated learning strategies can be relied upon for the purposes of the present study. (Ahmed, 2010) indicates that the value of the stability coefficient is better when the value of the stability coefficient is greater than (0.60) (Ahmed, 2010: 129).

#### 4. Presentation, Discussion, and Interpretation of the Results

This chapter includes a presentation of the findings of the present study by answering the following questions:

1. Do students of Faculty of Education for Pure Sciences/ Ibn Al-Haitham have self-regulated learning strategies?



To answer this question, the data of the main research sample, which amounted to (250) male and female students, was analyzed, and the T-test was used for one sample. The results were as in Table (2).

Table 2 - One-sample T-test results for self-regulated learning strategies

Strategies	Number of paragraphs	Arithmetic mean	Standard deviation	Hypothetical mean	T-value		Significance
					Calculated	Tabular	
Recitation	3	11.672	2.412	9	17.513	1.960	Significant
Using details	3	12.056	2.229	9	21.677	1.960	Significant
Regulation	3	12.052	2.239	9	21.552	1.960	Significant
Setting goals and planning	3	11.460	2.480	9	15.681	1.960	Significant
Self-monitoring	3	11.788	2.553	9	17.262	1.960	Significant
Meta-cognitive self-regulation	3	10.172	2.550	9	7.266	1.960	Significant
Self-regulation	3	10.176	2.547	9	7.298	1960	Significant
Self-reward	3	10.860	2.992	9	9.827	1960	Significant
Stimulating interest	3	10.628	2.084	9	12.346	1960	Significant
Self-talk about mastery	3	12.096	2.374	9	20.617	1960	Significant
Self-talk about performance	3	12.072	2.563	9	18.945	1960	Significant
Environmental control	3	12.348	2.255	9	23.470	1960	Significant
Requesting academic help	3	9.648	2.796	9	3.664	1.960	Significant
Learning from peers	3	11.080	2.687	9	12.2377	1.960	Significant
Searching for information	3	9.596	2.499	9	3.770	1960	Significant
Time management	3	9.512	2.109	9	3.837	1960	Significant
Keeping blogs	3	11.368	2.797	9	13.386	1960	Significant
Self-evaluation	3	10.824	2.620	9	11.004	1.960	Significant

From the table, it is clear that students of Faculty of Education for Pure Sciences/ Ibn Al-Haitham have self-regulated learning strategies. All the calculated T-values for all strategies were larger than the tabular T-value of (1.960) at the significance level of (0.05) and at a degree of freedom of (249). Referring to Al-Jarrah; Ezzat (1999); Chen (2002-2010); and Al-Shammari (2017), the researcher explains that university students are distinguished by having high levels of thinking skills as they are required to conclude and analyze information and do reports, which requires them to plan, evaluate, and monitor performance.

2. Are there differences in self-regulated learning strategies according to the research variables: gender; male-female and level; first-fourth?

In order to verify the statistically significant differences according to the gender; male-female and level; first-fourth variables, a two-way analysis of variance with interaction was adopted at the level of significance of (0.05) with a degree of freedom of (1, 246) as in Table (3).

Table 3 - Binary variance analysis of self-regulated learning strategies for the research sample according to the variables of gender and level

Strategies	Variance source	Total square values	Degree of freedom	Square values average	Calculated F-value	Significance level
Recitation	Gender	23.095	1	23.095	4.028	Significant
	Error	1410.463	246			
	Total	1448.802	249			
Using details	Gender	<b>5.669</b>	<b>246</b>	<b>5.669</b>	<b>1.134</b>	<b>Insignificant</b>
	Error	<b>1229.970</b>	<b>1</b>			
	Total	<b>1237.255</b>	<b>1</b>			
Regulation	Gender	<b>16.620</b>	<b>246</b>	<b>16.620</b>	<b>3.322</b>	<b>Insignificant</b>
	Error	<b>1230.804</b>	<b>1</b>			
	Total	<b>1267.504</b>	<b>1</b>			
Setting goals and planning	Gender	<b>34.256</b>	<b>246</b>	<b>34.256</b>	<b>5.628</b>	<b>Significant</b>
	Error	<b>1497.422</b>	<b>1</b>			
	Total	<b>1562.258</b>	<b>1</b>			
Self-monitoring	Gender	<b>95.474</b>	<b>246</b>	<b>95.474</b>	<b>15.381</b>	<b>Significant</b>
	Error	<b>1527.025</b>	<b>1</b>			
	Total	<b>1623.6</b>	<b>1</b>			
Meta-cognitive self-regulation	Gender	<b>49.882</b>	<b>246</b>	<b>49.882</b>	<b>7.826</b>	<b>Significant</b>
	Error	<b>1568.039</b>	<b>1</b>			
	Total	<b>1649.629</b>	<b>1</b>			
Self-regulation	Gender	<b>49.081</b>	<b>246</b>	<b>49.081</b>	<b>7.713</b>	<b>Significant</b>
	Error	<b>1565.315</b>	<b>1</b>			
	Total	<b>1616.288</b>	<b>1</b>			

Self-reward	Gender	<b>74.273</b>	<b>246</b>	<b>74.273</b>	<b>8.482</b>	<b>Significant</b>
	Error	<b>2154.070</b>	<b>1</b>			
	Total	<b>2233.358</b>	<b>1</b>			
Stimulating interest	Gender	<b>32.622</b>	<b>246</b>	<b>32.622</b>	<b>7.680</b>	<b>Significant</b>
	Error	<b>1044.976</b>	<b>1</b>			
	Total	<b>1082.272</b>	<b>1</b>			
Self-talk about mastery	Gender	<b>84.261</b>	<b>246</b>	<b>84.261</b>	<b>15.732</b>	<b>Significant</b>
	Error	<b>1317.554</b>	<b>1</b>			
	Total	<b>1403.888</b>	<b>1</b>			
Self-talk about performance	Gender	<b>50.458</b>	<b>246</b>	<b>50.458</b>	<b>7.827</b>	<b>Significant</b>
	Error	<b>1585.886</b>	<b>1</b>			
	Total	<b>1636.765</b>	<b>1</b>			
Environmental control	Gender	<b>38.020</b>	<b>246</b>	<b>38.020</b>	<b>7.652</b>	<b>Significant</b>
	Error	<b>1222.355</b>	<b>1</b>			
	Total	<b>1266.482</b>	<b>1</b>			
Requesting academic help	Gender	<b>9.074</b>	<b>246</b>	<b>9.074</b>	<b>1.154</b>	<b>Insignificant</b>
	Error	<b>1935.096</b>	<b>1</b>			
	Total	<b>1946.969</b>	<b>1</b>			
Learning from peers	Gender	<b>28.272</b>	<b>246</b>	<b>28.272</b>	<b>3.938</b>	<b>Significant</b>
	Error	<b>1766.075</b>	<b>1</b>			
	Total	<b>1798.239</b>	<b>1</b>			
Searching for information	Gender	<b>71.720</b>	<b>246</b>	<b>71.720</b>	<b>11.887</b>	<b>Significant</b>
	Error	<b>1484.175</b>	<b>1</b>			
	Total	<b>1556.176</b>	<b>1</b>			
Time management	Gender	<b>19.031</b>	<b>246</b>	<b>19.031</b>	<b>4.338</b>	<b>Significant</b>
	Error	<b>1079.280</b>	<b>1</b>			
	Total	<b>1108.669</b>	<b>1</b>			
Keeping blogs	Gender	<b>8.879</b>	<b>246</b>	<b>8.879</b>	<b>1.128</b>	<b>Insignificant</b>
	Error	<b>1936.764</b>	<b>1</b>			
	Total	<b>1948.168</b>	<b>1</b>			
Self-evaluation	Gender	<b>34.149</b>	<b>246</b>	<b>34.149</b>	<b>5.030</b>	<b>Significant</b>
	Error	<b>1670.192</b>				
	Total	<b>1736.401</b>				

1. There are statistically significant differences in the recitation strategy according to the gender variable. The calculated categorical value (4.028) is greater than the tabular categorical value

of (3.89) at the significance level (0.05) with a degree of freedom of (1.246). The difference is in favor of females. The arithmetic mean for males is (11.394), and the average for females is (12.008). This result corresponds to the study of Al-Shaarawy (1995), Khraibeh (2004) and Al-Quran (2006). The explanation of this is that the vast majority of females use the left side of the brain, which is characterized by the abilities of numbers, critical thinking, and language that needs to be repeated when learning while using the left side of the brain. Most of males are the right half, which is characterized by creativity and understanding skills (Ann Moir and David Jessel, 1985: 76). Males use this strategy less

2. There are no statistically significant differences in the strategy of using details according to the gender variable. The calculated t-value (1.134) is smaller than the tabular t-value of (3.89) at the significance level (0.05) with a degree of freedom of (1.246). As for the variable of level,

3. There are no statistically significant differences in the regulation strategy according to the gender variable. The calculated t-value (3,322) is smaller than the tabular t-value of (3.89) at the significance level (0.05) with a degree of freedom (1.246). As for the variable of level.

4. There are statistically significant differences in the strategy of setting goals and planning according to the gender variable. The calculated categorical value (5.628) is greater than the tabular value of (3.89) at the significance level of (0.05) with a degree of freedom of (1.246) in favor of males. The arithmetic mean is (11.867). Whereas, for females, the arithmetic mean is (11.124). The researcher believes that the nature of the social environment necessitates that males carry out planning processes, especially planning when carrying out their educational process..

5. There are statistically significant differences in the self-monitoring strategy according to the gender variable. The calculated t-value (15.381) is greater than the tabular t-value of (3.89) at the significance level of (0.05) with a degree of freedom of (1.246) in favor of females. The arithmetic mean is (12.469). Whereas, for males, the arithmetic mean is (11.226). These results correspond to the study of Al-Dabbas (2004). This explains that females are distinguished by being more regulated and more careful than males who tend to be indifferent

6. There are statistically significant differences in the meta-cognitive self-regulation strategy according to the gender variable. The calculated categorical value (7.826) is greater than the tabular value of (3.89) at the significance level of (0.05) with a degree of freedom of (1.246) in favor of females. The arithmetic mean is (10.663). The results of the present study correspond to the study of Ibrahim (1996). The researcher believes that females are more aware and regulated in what they do than males, whose arithmetic average is (9.766).

7. There are statistically significant differences in the self-reward strategy according to the gender variable. The calculated t-value (8.482) is greater than the tabular t-value of (3.89) at the significance level of (0.05) with a degree of freedom of (1.246). The arithmetic mean is (11.460). The results of the present study correspond to Freer's study (1995). As for females, the arithmetic mean is (10.365). The results of the present study correspond to Freer's study (1995). This explains that males have the ability to reward themselves after completing the tests. So, they often take trips and go out to the parks or practice sports hobbies on vacation days. Whereas, females usually go out to such places less than males.

8. There are statistically significant differences in the strategy of stimulating interest according to the gender variable. The calculated t-value (7,680) is greater than the tabular t-value of (3.89) at the significance level (0.05) with a degree of freedom (1.246) in favor of males. The arithmetic mean is (11.026). Whereas, for females, the arithmetic mean is (10.299). Most educated males have carelessness.

Females are more careful and pay more attention to learning. Males need this strategy more than females. As for the variable of level, there are statistically significant differences in the strategy of stimulating interest according to this variable. The calculated value of (4.940) is greater than the tabular value of (3.89) at the level of significance (0.05) with a degree of freedom (1.246) in favor of the fourth level students.

9. There are statistically significant differences in the self-talk strategy about mastery according to the gender variable. The calculated t-value (15.732) is greater than the tabular t-value of (3.89) at the significance level (0.05) with a degree of freedom of (1 .246) in favor of males. The arithmetic mean is (12.734). Whereas, for females, the arithmetic mean is (11.569). Males use ideas or self-talk to emphasize the completion of the work or task with a high level of proficiency and skill.

10. There are statistically significant differences in the self-talk strategy about performance according to the gender variable. The calculated t-value (7.827) is greater than the tabular t-value of (3.89) at the significance level (0.05) with a degree of freedom (1 .246) in favor of males. The arithmetic mean is (12.566). The result of the present study corresponds to the study of Ismail (1993). This explains that males set certain goals to increase their motivation to get good marks, which is a way to convince themselves to continue with the academic tasks assigned to them. The arithmetic mean is (11.664).

11. There are statistically significant differences in the environmental control strategy according to the gender variable. The calculated categorical value (7.652) is greater than the tabular value of (3.89) at the level of significance (0.05) with a degree of freedom of (1.246). ) in favor of females. The arithmetic mean is (12.778). Whereas, for males, the arithmetic mean is (11.992). This is explained by the role of females in society as they are entrusted with regulating work as they are more careful than males in arranging and regulating the spatial learning environment.

12. There are no statistically significant differences in the strategy of requesting academic help according to the gender variable. The calculated t-value (1.154) is smaller than the tabular t-value of (3.89) at the significance level (0.05) with a degree of freedom of (1.246). This is explained by the fact that male-female students seek help from teachers or their parents when they are faced with ambiguity in a subject. Thus, there is no difference in the use of the academic help strategy according to gender.

13 There are statistically significant differences in the strategy of learning from peers according to the gender variable. The calculated categorical value (3.938) is greater than the tabular value of (3.89) at the level of significance (0.05) with a degree of freedom of (1.246) in favor of females. The arithmetic mean is (11.451). Whereas, for males, the arithmetic mean is (10.773). The result of the present study corresponds to the study of Owens (1992); Johnson and Englehard (1992); and Jedin and saad (2006). Males prefer individual education. Whereas, females prefer cooperative learning.

14. There are statistically significant differences in the strategy of searching for information according to the gender variable. The calculated t-value (11.887) is greater than the tabular t-value of (3.89) at the significance level (0.05) with a degree of freedom of (1.246) in favor of males. The arithmetic mean is (10.185). Whereas, for females, the arithmetic mean is (9.109). The results of the present study correspond to the study of Al-Hawari and Al-Khouli (2006). This is explained by the fact that males have greater freedom to go to private or public libraries and participate in forums.

15. There are statistically significant differences in the time management strategy according to the gender variable. The calculated categorical value (4.838) is greater than the tabular value of (3.89) at the level of significance (0.05) with a degree of freedom of (1.246) in favor of females. The arithmetic mean is (9.814). Whereas, for males, the arithmetic mean is (9.262). The explanation for this is that females are more careful than males in scheduling and dividing time according to the work required.

16. There are no statistically significant differences in the strategy of keeping blogs according to the gender variable. The calculated t-value (1.128) is smaller than the tabular t-value of (3.89) at the significance level of (0.05) with a degree of freedom (1.246). The results of the present study correspond to the study of Al-Hawari and Al-Khouli (2006) and Ali (2003). All male and female learners tend to take notes and keep records.

17. There are statistically significant differences in the self-evaluation strategy according to the gender variable. The calculated t-value (5.030) is greater than the tabular t-value of (3.89) at the significance level (0.05) with a degree of freedom of (1.246) in favor of females. The arithmetic mean is (11.230). Whereas, for males, the arithmetic mean is (10.489). This can be explained by the fact that females compared to males constantly compare and evaluate themselves and pay attention to weaknesses.

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