

The level of self-efficacy among pupils of the second year of secondary experimental sciences

A field study on pupils in the second year of secondary experimental sciences with high academic achievements in the high schools of the city of Biskra

Received date: 06/07/2022 Accepted date:12/09/2022 Published date:18/09/2022

Fatima Zohra Salhi ¹ Ouassila Benameur ²

¹ University of Biskra, Mohamed Khider , the Educational Issue Laboratory In Algeria In light Of The Current Challenges-Algeria

Email : fsalhi2002@gmail.com

² University of Mohamed Khider Biskra-Algeria, Email : wassila2007fr@yahoo.fr

Abstract:

The study aimed to identify the level of self-efficacy of secondary-school pupils with experimental sciences with high academic achievement, where the study sample consisted of (100) male and female pupils from the secondary schools of Biskra for the academic year (2018-2019) who were chosen intentionally, and to collect data, the Ahmed scale was applied Glue to measure self-efficacy. The study found that 64% of pupils with high academic achievement have high self-efficacy.

Keywords: self-efficacy; academic achievement.

Correspondent author : Fatima Zohra Salhi, Email: fsalhi2002@gmail.com

1. INTRODUCTION

Self-efficacy is one of the most important theoretical and scientific concepts in modern psychology, which was developed by Bandura, in which he emphasized the individual's beliefs about his abilities in order to accomplish a behavior or a set of successful behaviors, these beliefs appear through the cognitive awareness of personal abilities and experiences. Whether direct or indirect, self-efficacy is also one of the most important mechanisms of personal power in individuals, as it represents an important center in the motivation of individuals to do any work or activity in addition to its impact on the direction of action, effort, and perseverance in the face of challenges or failure, adaptation or compatibility, the ability to face pressures and frustrations in difficult situations. (Essayed, 2005, p. 8) In light of the importance of self-efficacy in the lives of individuals, this study came to reveal the level of self-efficacy among high-achieving high school pupils in the province of Biskra.

2. THE PROBLEMATIC OF RESEARCH

Self-efficacy is one of the important topics in psychology and education sciences. It is one of the most important factors affecting the perseverance and academic performance of the learner. It also helps explain the behavior of the individual. The learner, for example, performs the tasks entrusted to him based on the beliefs he has about his abilities, which leads him to make a greater effort to perform those

tasks and reach the required level, and therefore the learner enjoys a high level of self-efficacy evidence of the safety of the educational process, while the level of efficiency. The learners' subjectivity makes them vulnerable to pressures and difficulties in daily life, which may affect their academic compatibility and academic achievement.

It also described self-efficacy as a set of judgments issued by the individual, which expresses his beliefs about his ability to perform certain behaviors, his flexibility in dealing with difficult and complex situations, defying difficulties, and the extent of his perseverance to accomplish the tasks assigned to him. It expresses the learner's ability to perform behavior that achieves desired results in a particular study situation, and may be affected by several factors, the most important of which are the learner's intelligence, preparations, tendencies and psychological state, and his relationships within the classroom with his peers and scholars, as well as the classroom density and his social status and other factors that help him to have self-efficacy that allow him to develop academic self-efficacy, and improve the level of academic achievement, and this was confirmed by the study of Shaheen (2012), and the study of Carol and Hutu Nuansworth and Hetty (2009) (Shatwan, 2018, p. 138), where there is a positive relationship between self-efficacy and academic achievement, and Martinez (2003) study (A training program based on academic self-efficacy in the field of descriptive statistics and its impact on some

dimensions of emotional intelligence among a sample of female students of the Faculty of Humanities Studies, University of Al-Azhar, 2015, p. 639) which concluded that self-efficacy is the only predictor of academic achievement.

Through the foregoing, it was noted the need to identify the level of self-efficacy among a sample of high-achieving pupils by asking the following question: - What is the level of self-efficacy among pupils of the second year of secondary experimental sciences with high academic achievement in the city of Biskra, Algeria?

3. RESEARCH AIMS

Identifying the level of self-efficacy among high-achievement secondary school pupils of experimental sciences in the high schools of the city of Biskra - Algeria.

4. IMPORTANCE OF RESEARCH

- The importance of the current study lies in highlighting the value of self-efficacy in raising the level of academic achievement of second secondary pupils.

- The importance of this study in revealing the level of self-efficacy among pupils helps to control behavior that leads to a decline in academic performance, which is beneficial for those who need programs in the academic, behavioral or emotional fields.

5. CONCEPTUALIZATION

5.1 Procedural definition of self-efficacy

It is the total score obtained by the student after applying the self-efficacy scale used in this study, which ranges between (22-110) degrees.

2.5. Pupils of the second year of secondary experimental sciences

They are the pupils who were selected from among the pupils with high academic achievement in the secondary schools of the city of Biskra.

High achieving pupils:

They are pupils whose semester averages exceed 14 (00). The latter is the standard average of the semester for pupils in the second year of secondary experimental sciences at the secondary schools of Biskra.

6. Theoretical framework for research:

1.6. Self-efficacy

1.1.6. Define self-efficacy

Jaber defined it: an individual's expectation that he is able to perform a behavior that achieves desirable results in any situation.

Pajares defined it: the individual's belief in his own capabilities and confidence in his ability and information, and that he has the

ingredients that enable him to achieve the level that satisfies him or achieve balance for him, defining his efforts and energies at this level. (Alwan, 2012, p. 227)

The concept of self-efficacy is one of the important concepts in explaining human behavior, especially from the viewpoint of social learning theorists. Some researchers in the Arab environment, such as Al-Zayat (2001), have dealt with the term (self-efficacy), where he translated it into the terms self-efficacy, or self-efficacy. (Al-Ali and Abdel-Qader, 2016, pg. 487).

Bandura defined self-efficacy as: "the individual's expectations about his performance in ambiguous situations, and these expectations are reflected in the individual's choice of activities included in the performance, and the amount of efforts made to face difficulties and accomplish the behavior" (Al-Masry, 2010, pg. 46).

In general, the researchers see that self-efficacy refers to the individual's belief in his ability to face difficulties and challenges, and to perform the desired behavior. Perceived self-efficacy is the learner's beliefs about his abilities to organize and implement actions and procedures necessary to achieve positive results in his studies (Al-Zaqq, 2009, p. 45).

2.6 Levels of the effect of self-efficacy

Individuals' beliefs about self-efficacy determine the way they feel, think, and motivate themselves to achieve and adopt

effective strategies to confront different situations. Therefore, they exert various effects on four basic processes, including:

1.2.6. Cognitive Processes

Behaviors are adopted in view of the cognitive organization that integrates the evaluation of goals. Behavioral methods are automatically regulated in thinking.

2.2.6. Motivation processes

Self-efficacy beliefs play a key role in self-regulation of motivation and include the ability to exercise self-impact goals and challenges and evaluate achieved results, an important cognitive mechanism for motivation, as well as allowing prediction of subsequent performance levels and thus enhancing self-efficacy.

3.2.6. Emotional processes

Individuals' beliefs about their self-efficacy are affected by their abilities to face difficult situations they face, and the resulting pressures that lead to anxiety and depression. Not only, but by recognizing the efficiency in controlling the thinking that leads to anxiety.

4.2.6. Selection processes

Individuals who have high levels of self-efficacy tend to choose tasks in which they feel a high degree of confidence and achievement,

without avoiding benefiting and developing competencies through these choices (Boukasara, Ziad, 2015, p. 30).

3.6. Self-efficacy resources

1.3.6. Performance achievements (Mastery Experiences)

Success experiences support the individual's self-efficacy. If the individual's success in certain works is repeated, his sense of self-efficacy increases, while the repetition of failure in the individual reduces his sense of self-efficacy (Al-Alwan, Al-Mahasna, 2011, p. 400).

2.3.6. Vicarious Experience

It refers to the learner's ability to learn a new behavior, by observing the behavior of social models with which he coexists. (Hegazy, 2013, 420)

3.3.6. Verbal Persuasion

It is a source of strengthening people's beliefs that they have what they need to achieve success, and persuasion is linked to encouragement and discouragement (Beiruty, Hamdi, 2012, 285).

4.3.6. Emotional arousal

Emotional arousal contributes to raising self-efficacy if it is moderate and reduces it if it is severe (Hegazy, 2013, 420).

7. Methodological procedures for research

1.7. Research Methodology

Depending on the nature of the topic and the research problem and its question, the descriptive exploratory approach was employed, which is based on describing the phenomenon to be studied by collecting information and data about it, and then it can be classified and analyzed, and thus reach results that help us understand this phenomenon as it is in the reality of the educational institution.

Research limits

The spatial boundaries:

Represented in the high schools of the city of Biskra, which are: Larbi Ben Mhidi High School _ Reda Al-Achouri High School _ Said Obaid High School _ Si El Hawas High School _ Mohamed Bedjaoui High School _ Mohamed Bousbayat High School _ Makki Mona High School _ Al-Saeed Bin Shayeb Centre _ Muhammad Garouf Centre _ Muhammad Ballar Centre _ Hakim Saadan High School _ Obaid Allah High School.

Time limits: The application period lasted from 15/02/2018 to 30/04/2018

Human limits: the current study was limited to pupils in the second year of secondary experimental sciences with high academic achievement studying during the academic year 2018/2019

2.8. The research sample

The research sample consisted of 100 male and female pupils from an indigenous community (out of a total of 103 students) from high-achieving second-year pupils of experimental sciences in high schools in the city of Biskra, Algeria. They were chosen intentionally after looking at their rates in the first and second semesters of the same school year.

3.7. Research tools

To answer the study’s question and achieve its objectives, one tool was used, which is the self-efficacy scale prepared by “Ahmed El-Zeq”, which consists of 22 items, each of which is listed on a five-degree scale, and the item that indicates high academic self-efficacy gives (5) scores. If answered (exactly correct), (4) scores for answer (correct), (3) scores for answer (I don’t know), (2) for answer (rarely) and (1) score for answer (not at all true) and The total score that the examinee could obtain ranged between (22-110) degrees (Al-Zaqq, 2009, p. 48).

Table 1. The levels of self-efficacy were divided into three levels

Level of self-efficacy	Degree
Low	55-22

medium	80-51
High	80-110

Table 1: Shows the levels of self-efficacy, and the distribution of grades Level of self-efficacy degree Low level (22-51) Intermediate level (51-80) High level (80-110)

Table 1 represents the levels of self-efficacy, with scores of low self-efficacy ranging between 22 and 51, average self-efficacy scores between 51 and 80, and high self-efficacy scores between 80 and 110.

In order for the scale to have a great deal of reliability in data collection, its psychometric properties were adjusted for validity and reliability. After applying it to an exploratory sample of 40 male and female pupils of the second secondary experimental sciences, they were selected by the simple random method, and the psychometric properties were calculated using the statistical package for social sciences (SPSS 20).

1.3.7. Validity of the study tool

To check the validity of the tool, discriminatory validity was calculated.

Discriminant validity

In order to be able to distinguish between the two sides of the characteristic, the discriminant validity of it was calculated after applying it to a sample of 40 male and female pupils, where their scores were arranged in ascending order, then 33% of both sides were taken, the lowest and highest distribution.

Then, a t-test was applied to two independent samples, from the lower and upper groups. As shown in the following table

Table 2 shows the discriminant validity of the scale

Significance	T value	Difference of averages	Standard deviation	Average	N	Variables
0.000	15.524	31.462	5.273	62.15	13	Low
			5.059	93.62	13	High

Through the results shown in the table above, with regard to the discriminant validity of the scale, we find that the number of members of the lower and upper group equals 13, with a mean of 62.15 and 93.62, respectively. With a standard deviation of 5.273 and 5.059. The difference between the two averages was estimated at 31.462. After calculating the value of "t" for two independent averages, which was estimated at 15,524, and after comparing the significance level (Sig 0.000), which is less than the significance level (Sig 0.05), and therefore the difference between the two groups' averages is significant, and from it it can be said that the scale has discriminatory validity.

2.3.7. Stability

The stability of the scale was calculated by two methods: (half segmentation and Cronbach's alpha).

Half split

Where the scale statements were divided into two parts, and then the correlation coefficient between the two halves of the scale was calculated using the Pearson method, and it was corrected from the effect of length using the Spearman-Brown method. The following table shows the stability coefficient of the scale using the split-half method, as shown in the table below.

Table. 3. The stability coefficient of the scale using the split-half method

	,848	Value		
			Class 1	
11 ^a		Number of phrases		
	,571	Value		Alpha
				Cronbach
		Number of phrases		
	11 ^b			

	22		Total number of phrases		
	,618		Correlation coefficient between the two sections		
	,764	Equal to length		Spearman-Brown Correlation coefficient	
	,764	Unequal length			

Table 3 shows the stability coefficient of the scale using the split-half method

Through the results of the above table about the stability of the scale by the split-half method, we find that the value of the reliability coefficient by the Spearman Brown method was estimated at (0.76), which is an acceptable stability coefficient, and from it it can be said

that the questionnaire is characterized by internal consistency between its statements.

- Alpha Cronbach method: The internal consistency consistency coefficient of the scale was calculated using the Alpha Cronbach method as shown in Table 4:

Table 4 shows the coefficient of stability of the scale using the alpha-Cronbach method

Number of phrases	Alpha Cronbach
22	0843

Through the above table, we find that Cronbach's alpha stability coefficient was estimated at 0.84, which is a high stability coefficient, which shows that the scale has internal consistency between its items.

4.7. Statistical processing

Percentages were used.

8. Displaying and discussing research results

Presentation and interpretation of the results of the question, which states:

What is the level of self-efficacy among pupils of the second year of secondary experimental sciences with high academic achievement in high schools in the city of Biskra. Algeria?

To answer the previous question, we used frequencies and percentages as shown in the following table:

Table. 5. The frequencies and percentages of the sample members' responses to the study question

Sample	Low level	Medium level	High level
Repetition	0%	36%	64%
%	0%	36%	64%

Table 6 shows that 64% of the sample respondents had high responses on the self-efficacy scale, while the percentage of low responses was 0%, and the percentage of those whose responses were average was estimated at 36%. From the data in Table 6, we find that most of the sample members, whose percentage was estimated at 64%, have high self-efficacy.

This explains that pupils of high academic achievement enjoy high self-efficacy, and this was confirmed by the study (Landine (2000), the study (Cruz (2002) and the study of Carroletal (2009), as well as what the study (Debarrasso and Hammouda) found) that there are statistically significant differences in self-efficacy.

This is due to the level of academic achievement, and this is in favor of high-achieving pupils who obtained a higher arithmetic average in self-efficacy, which means that the high-achieving group shows high self-efficacy (Debraso and Hammouda, 2017, p. 15)

In addition to that, what Bandura mentioned about the individual's actual or self-experience and achievements as it is the most important factor in determining an individual's self-efficacy. Success raises the level of self-efficacy while failure lowers it. However, the result of this study differs with the result of the study of Shatwan Hajj and Boukasara Mansour (2018), which found that there is no statistically significant relationship between self-efficacy beliefs and academic achievement for both males and females. It is believed that the result that was reached in the current study is the result of the overlap of several factors in the secondary stage, such as the academic specialization factor, for example.

9. CONCLUSION

The aim of the research is to identify the level of self-efficacy among pupils of the second year of secondary experimental sciences with high academic achievement, and the results have concluded that the sample members have high self-efficacy, success increases the level of self-efficacy while failure reduces it, in addition to the experiences and actual or self-accomplishments of the individual as the most important factor in determining learners' self-efficacy. The research recommends the need to generalize the research in the self-efficacy variable in other phases, especially in primary education, and the need to take care of pupils in order to guarantee them special care so that they reach the highest ranks in the study.

The research also recommends the necessity of linking the self-efficacy variable with other variables and taking other samples, such as pupils with low academic achievement, which allows the preparation of extension programs so that they can continue studying in a proper manner and reach higher levels of education.

Bibliography List :

1. Al-Ali, Majed Mustafa Ali & Abdel-Qader, Abdel-Muttalib. (2016). *Self-efficacy and its relationship to values and academic achievement among secondary school students*. Journal of Educational Sciences. 24(3). 481-522
2. Al-Masry, Nevin Abdel-Rahman. (2010). *Future anxiety and its relationship to self-efficacy and the level of academic ambition*

among a sample of Al-Azhar University students. A supplementary thesis for obtaining a master's degree in the Department of Psychology, Faculty of Education, Al-Azhar University, Gaza.

3. Alwan, Ahmed and Mahasna, Randa. (2011). *Self-efficacy in reading and its relationship to using reading strategies among a sample of Hashemite University students*. The Jordanian Journal of Educational Sciences, Volume 7(4), 399-418
4. Alwan, Sally Taleb (2012). *Perceived self-efficacy among Baghdad University students*. *Journal of Educational and Psychological Research*, No. 33, 224-248
5. A training program based on academic self-efficacy in the field of descriptive statistics and its impact on some dimensions of emotional intelligence among a sample of female students of the Faculty of Humanities Studies, University of Al-Azhar. (October 2015). *Journal of the College of Education of Al-Azhar University*, (p. 165), 627-709
6. Bandura, A. (1977). *Self-Efficacy: Toward A unifying Theory of Behavioral Change*, *Psychological Review*, 84 (2), 191- 215
7. Beiruti, Aida Yaqoub Selim and Hamdi, Mohamed Nazih Abdel Qader. (2012). *The Effectiveness of Mothers' Training on Differential Reinforcement and Re-imagining in Reducing the Disobedience Behavior of Their Children and Improving the*

- Perceived Self-Efficacy of Mothers. The Jordanian Journal of Educational Sciences*, Vol. 8, p. 4, pp. 283-302.
8. Bougassara, Mensour & Ziad, Rachid. (2021). *Psychometric properties of the Generalized Self-Efficacy Expectations Scale- Algerian version- for high school pupils* .Journal of Psychological and Educational Sciences. 1. 24-52 .
9. Debarassou, Fatima & Hamouda, Meriem. (2017). *Metacognitive strategies in self-organized learning according to the competency approach for high and low self-efficacy (a comparative study in the light of the achievement variable)* Journal of Social Science Development, 10(1), 1-17
10. El Zaq, Ahmed Yehia. (2009). *Perceived academic self-efficacy among students of the University of Jordan in light of the variables of gender, college and academic level*. Journal of Psychological and Educational Sciences, 10(2), 37-58
11. Essayed. Abu Hashem Hassan. (2005). *Analysis indicators for self-efficacy research in the light of Bandura's theory*. Saudi Arabia: College of Education Research Center.
12. Hijazi, Goltan. (2013). *Self-efficiency in relation to vocational adjustment and performance quality among the teachers of resources rooms in West Bank governmental schools*. The Jordanian Journal of Educational Sciences, 9(4), 418-433.

13. Shatwan, Hajj and Bougassara, Mensour (2018). *The relationship of self-efficacy beliefs with academic achievement among secondary school students. Journal of Psychological and Educational Studies*, 11(2), 106-119
14. Yacoub, Nafith Nayef. (2012). *Perceived self-efficacy and its relationship to achievement motivation and academic achievement among students of King Khalid Colleges in Bisha. Journal of Educational and Psychological Sciences*, 13(3), 71-98

