

The Effect of the Mobile Correspondent Strategy on the Achievement of Students of the College of Basic Education / Department of Science in the practical Subject of Algae and Fungi

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Abstract

The research aims to identify the impact of the strategy of the mobile correspondent on the achievement of students of the College of Basic Education / Department of Science in the practical subject of algae and fungi .

To achieve the goal of the research, the following null hypotheses were developed:

1- There is no statistically significant difference at the level of (0.05) between the average scores of the experimental group students who studied according to the mobile correspondent strategy and the average scores of the control group students who studied according to the usual method in the practical test of algae and fungi.

To achieve the goal of the research and its hypotheses, the researcher adopted the experimental design with two groups of experimental and control, one of them controlling the other partial control and those with a post-test to measure achievement and positive thinking. The current research community is represented by all the students of the third stage / Department of Science / Branch of Life Sciences / Colleges of Basic Education in Iraq for the academic year (2020-2021), The researcher chose the third-stage students of the Science Department / Life Sciences Branch in the College of Basic Education / Al-Mustansiriya University as an intentional sample, as the number of its members reached (83) students distributed between two classrooms (A and B).

The researcher chose a sample representative of a community the research, which had many (56) male and female students, and by random assignment, the first group was called an experimental consisting of (28) male and female students, and the other was the control group consisting of (28) male and female students. The two groups were equivalent in variables (the chronological age of students calculated in months, the academic achievement of the parents, the test of previous knowledge of microbiology, the scores of the microbiology for the second semester of the previous year, the intelligence test (Raven),) The researcher studied the two groups with the assistance of a practical professor of algae and fungi, and the researcher prepared the research requirements in terms of defining the study material that will be studied during the period of the experiment, which is (10) Lectures and behavioral goals were formulated (212) a behavioral objective in Bloom's six levels (knowledge, understanding, application, analysis, synthesis, and evaluation). Daily plans were prepared for teaching the two research groups (experimental and control).

The researcher presented one of them to a group of arbitrators and experts to see its validity and suitability for the third stage students, the researcher prepared two tools for the research, the first of which was an achievement test in practical algae and fungi material of the multiple-choice type, it consisted of (40) items,. One of them is to see the clarity of the items and the time of the answer The other is to know an analysis of the items of the test statistically to extract the difficulty factor, discrimination, and effectiveness of the wrong alternatives, as well as extracting the consistency of the achievement test.

The researcher applied the two research tools to the two research groups (experimental and control) after the end of the experiment, which lasted for eleven weeks, as it began on Monday (7/12/2020 AD) and ended on Wednesday (15/2/2021 AD).

After analyzing the data and treating it statistically, the researcher reached the following results:

1- The experimental group students who studied according to the strategy of the mobile correspondent outperformed the control group students who studied according to the usual method in the achievement test, as (t) calculated reached (19.33), which is greater than the tabular value of (t) (2,000) at the level of Indication (0,05).

Chapter One
Definition of Research**First: The problem of the research**

Biology is one of the basic pillars of the natural sciences, which provides us with a lot of information about living organisms and their importance in various fields, including knowledge of the classification of these organisms as well as their physiological functions and the biological systems contained in their bodies, in addition to identifying the method of transmission of genetic characteristics from one generation to another, and the scientific progress that took place during our current century has led to the necessity of paying attention to this science, its methods of teaching and its concepts, and an attempt to raise the scientific level of students, Therefore, budgets have been allocated to hold scientific and educational conferences and seminars, the purpose of which is to study modern teaching methods and work to use them to develop the scientific tendencies and mental abilities to think among students (Yusef, p. 1-10, 2019).

Because of the importance of the practical aspect in teaching biology and upbringing students A correct scientific upbringing, it is considered as the backbone of quality in refining their skills and abilities because of its effective role in facing the reality of the profession and identifying its problems, as theoretical study has no important value and truth unless it is accompanied side by side by practical application (Abu Shaqur, p. 167, 2017).

Despite its importance and the many modern educational trends and the emphasis of many educators on it, the actual reality of its teaching is still characterized by stagnation, which led to a lack of interaction and participation of students in the classroom or educational laboratories, where the practical side was exposed to neglect and lack of care, clearly by officials in the Ministry of Education, and even by the teaching staff, and this neglect constitute obstacles that prevent the use of this aspect in teaching, including a lack of laboratory equipment and equipment needed for each student to use in his experiences in addition to the small size of the area of the laboratory compared to the number of students so that it does not allow them the opportunity to move freely when conducting experiments, as well as the lack of interest of the teachers in using modern teaching methods that work to develop students' ability to think through exposure to educational problems that help stimulate their thinking and continuous research in order to reach the discovery of facts On their own, and in light of what the researcher has mentioned about matters related to the practical side, I have endeavored to find a method or strategy that supports this aspect in teaching and making the student the focus of the educational process, her attempt came to try (the strategy of the mobile correspondent) and identify the extent of its effectiveness in developing the skills of observation, measurement and conclusion of the research sample and encouraging them to think positively by answering the following question:

What is the impact of the strategy of the mobile correspondent on the achievement of students of the College of Basic Education / Department of Science in the practical subject of algae and fungi?

Second: The importance of the research

Our society is facing rapid transformations in all areas of life and many challenges and changes in addition to the scientific and technological revolution (cognitive, informational, and computer), pluralism, environment, energy, and other fields that have their impact on all aspects of life, as knowledge changes infinitely and is no longer fixed and specific (Hamza, p. 148, 2011).

Many countries strive with all their effort and with all their energies to make development and change in their societies, whether in material or intellectual aspect. Education is an important means to bring about this change (Ibrahim, p. 23, 2018). As education helps to create interaction between the individual and the environment in which he lives. This includes interaction with the natural environment, the social environment, and its manifestations, and it is a long process that has no end except with the end of the individual's life. Education is the process of coexistence with the culture so that it is integrated into a specific society and under certain conditions and is in line with a limited system and under the appropriate rule in addition to being subordinate to the beliefs of this society (Al-Khalidi, p. 20, 2008).

Higher education, which is the last stage in the educational system, seeks with all its energy to achieve the objectives of education to provide society with a highly prepared generation in various disciplines and capable of adapting to all changes, whether technological or economic (Nammour, p. 1, 2012). It is very important to teach students how to think as educational institutions are satisfied with training memory more than

training the mind. The teacher should put his students in situations that help them to think positively and know the extent of their mental abilities (Zaghoul, P. 273, 2012).

teachers should follow modern and appropriate strategies that emphasize the students' positivity in the educational situation (Qadir, P. 125, 2014).

Among the modern strategies in teaching is the strategy of the mobile correspondent, which the researcher will address in this study. It is one of the strategies of active learning and is considered an interactive and collaborative strategy that helps to enhance educational synergy by collecting and employing ideas resulting from groups among students and allows them to cooperate in one group as well as cooperation with members of groups. It also gives students the freedom to move between groups within the classroom. This strategy helps to develop intimacy and love among students and encourages them to work together for the benefit of all, away from negative competition and favoring the public interest over the personal interest that prevents the achievement of various goals, thus helping to raise their level of achievement (Al-Khafaji, P. 7, 2015).

Third: The objective and hypotheses of the research: The current research aims to know:

The effect of the strategy of the mobile correspondent on the achievement of students of the College of Basic Education / Department of Science in the subject of algae and fungi practical and positive thinking they have.

The following two null hypotheses were derived from the goal:

- There is no statistically significant difference at the level of significance (0.05) between the average scores of the experimental group students who studied according to the strategy of the mobile correspondent and the average scores of the control group students who studied according to the usual method in the practical test of algae and fungi material.

Fourth: Research boundaries: The current research is limited to:

1- Third stage students / Department of Science / Branch of Life Sciences / College of Basic Education of the Presidency of Al-Mustansiriya University in Baghdad Governorate.

2- The first semester of the academic year (2020/2021).

3- Subject (general characteristics of fungi and their feeding methods, fungi external appearance, sterilization, cultural media, isolation of fungi, sticky gel fungi, algae science, green algae, euglena algae, golden algae).

Fifth: Defining terms

Roving Correspondent Strategy: It means that one of the members of the experimental group moves around the classroom and his mission is to collect information from other groups and transfer it to his team so that they can benefit from it in solving the questions given to them (Heartland, p.17, 2006).

Achievement: An educational achievement or academic achievement of the subject, which means achieving a certain level of proficiency in the study, whether in the school or university, and this determines standardized tests or teachers' reports or both (Ahmed, p. 90, 2010).

Procedural definition: It refers to the amount achieved by third-stage students from their acquisition of knowledge, information, and skills in algae and fungi, measured by the degrees they obtain after responding to the achievement test, which the researcher prepared for this purpose.

Procedural definition: It means the total score obtained by the third stage students (the experimental group) as a result of their response to the items of the Positive Thinking Scale, which the researcher has prepared and consists of (45) items.

Chapter Two

The theoretical background and previous studies

First: Constructivist theory

In the last two decades, educational research has witnessed important and major transformations in its view of the teaching and learning process, thus focusing on everything related to the teaching staff, whether it is his personality, style, and method of teaching in addition to that, transformations in the learning environment, the curriculum, the educational process outputs and other factors That affects the building of the student's personality, his previous information and knowledge, his ability to receive and process information, the extent of his motivation towards the learning process and his thinking methods as he is the focus of the educational process Thus, it makes this process of great benefit to students, and researchers have had effective contributions in this aspect, which helped in the emergence of what is known as the constructivist theory (Zaytoun and Kamal, p. 17, 2003).

The constructivist theory is one of the modern theories in the teaching and learning process as it is based on the theory. Which is known as Piaget theory and in his view of the human mind as well as it is based on the theory of Ozbel, which is known as the meaningful learning theory that the educational material that students are exposed to is a material that is meaningful and has a fundamental link with the cognitive structure of the individual. (Al-Muhaisin, p. 140, 2007).

Second: Previous studies

no	Researcher's name, year, and country	The goal of the research	Research material	Stage	The curriculum used	The type and size of the sample	Study tools	Statistical means	Results
1	Nour Abbas Shiaa Al-Salami (2018) Iraq	Knowing the impact of the strategy of the mobile correspondent in the achievement and retention of the social subject of the fifth-grade female students	Sociology	Girls of the fifth-grade primary school	The experimental research methodology with partial control for the two groups (experimental and control)	(53) pupils: (25) pupils in the first group, which is the experimental group, and (28) pupils in the second group, which is the control group.	Achievement test consisting of (40) test items measuring the first three levels)	Statistical Program (SPSS) (T-test)	The experimental group outperformed the control group in the achievement test and the substance retention test

Chapter Three:

Research methodology and procedures

First: Research methodology and experimental design

The researcher chose the experimental design with two groups of experimental and control, one of them controlling the other partial control and those with a post-test to measure achievement and positive thinking, as shown in the diagram below (2).

group	Parity	Independent variable	Dependent variable
Experimental	1-Chronological age of students (in months) 2- Parents' academic achievement 3. Previous achievement of the microbiology courses for the second semester 4. Test previous information 5. IQ Test (Raven)	Teaching according to the strategy of the mobile correspondent	- The collection - Positive thinking
Control		Teaching according to the usual method	

Scheme (6) experimental design adopted in the research

Second: The research community and its sample

The current research community consists of all students of the third stage / Department of Science / Branch of Life Sciences / Colleges of Basic Education in Iraq (except for the region) for the academic year (2020-2021 AD).

As for the sample, it represents a model that reflects an aspect or part of the original community concerned with the study so that it is representative of it and carries the characteristics and characteristics of that community (Qandalji, p. 186, 2013). Based on that, the researcher selected a representative sample for the research from the community of third stage students/department of Science/branch of Life Sciences / College of Basic Education / Al-Mustansiriya University as an intentional sample in the governorate of Baghdad for the academic year (2020-2021 AD) of (84) male and female students distributed in the following order:

- 1- Department of Science - Morning Studies (79) male and female students.
- 2- Department of science evening Studies (5) male and female students.

Thus, the research community would be (84) male and female students.

As the researcher identified randomly the two groups of experimental and control research, where Division (A) was chosen to represent the experimental group that studies the material of algae and fungi practically according to the strategy of the mobile correspondent, and Division (B) represented the control group that studies the same material according to the usual method, so The number of students in the experimental group was (28) students, and the number of students in the control group was (28) students.

Third: Research requirements

A- Determining the scientific material

Before starting the experiment, the researcher determined the content of the scientific material that will be studied for the two research groups during the first semester, according to the vocabulary of the practical algae and fungi science subject to be taught to the third stage students for the academic year 2012-2020.

B- Formulating the behavioral objectives

The behavioral objectives were formulated by the researcher depending on the content of the scientific material and the number reached (212) behavioral objectives and according to the classification (Bloom) in the

cognitive field as it is the most common and used and detailed classification according to its six levels (knowledge, comprehension). Application, analysis, synthesis, and evaluation). (Bloom, p. 107, 1983).

C- Preparing the teaching plans

The researcher prepared two types of the teaching plan for the two research groups, one of which represents the teaching plans of the experimental group according to the strategy of the mobile correspondent, while the other represents the teaching plans of the control group according to the usual method of (10) plan and was presented to a group of experts and arbitrators in the field of Teaching methods, measurement and evaluation, educational psychology, and life sciences specialization.

Fourth: The search tool

A- Preparation of the achievement test: The test aims to measure the achievement of the students of the third stage of the life sciences branch in the practical subject of algae and fungi.

Validity of the test: The researcher prepared the achievement test and the specification table and presented it to a group of experts and referees to express their opinions and observations about the validity of the items and the validity of preparing the specification table, and according to their observations, some changes were made to the test items.

1- Difficulty coefficient for the items: The difficulty factor was calculated for the objective items and it was found that it ranged between (0.37-0.58) and thus the test items are considered good and acceptable and their difficulty factor is appropriate Appendix (12-a).

2- The discriminatory strength of the items: The researcher found that it ranges between (0.53-0.77) Appendix (12-A), and thus it is considered a good indicator of accepting the items in terms of their discriminatory ability.

3 - The effectiveness of the wrong alternatives (denatured): since it was found that all the wrong alternatives are negative and their value ranges between (-0.03_ -0.37).

4- The stability of the achievement test: To identify the stability of the achievement test, the researcher used two methods of calculating the stability:

A- The re-test method: This method measures the external homogeneity of the test items. The researcher tested the stability sample as they were randomly selected and applied the cognitive achievement test on the above sample, and after two weeks the researcher re-test on the same sample, and by using the Pearson correlation coefficient, the relationship between the two applications was calculated. It turns out that the stability value calculated in this way is (0.87) and when quadrature it to obtain the common interpretation coefficient, the stability value was (0.76), which is greater than (0.50), and this coefficient is considered reliable. Thus, the alienation coefficient was (0.24) (Al-Tamimi, p. 94, 2016).

B- The method of (Cuder Richardson-20): This method is used to measure the internal consistency of the achievement test items, and it is one of the most popular methods to extract the stability of the test items and because all the items are objective and of the type of multiple-choice, as well as it gives one score for the correct answer and zero for the wrong answer, the researcher applied this equation to the same sample forms used in the first method, After treating it statistically, it was found that the value of the stability coefficient is (0.93), and when quadrature it to obtain the coefficient of the common interpretation, it was found that the value of stability is (0,86) and it is greater than (0.50) and thus it is considered a reliable coefficient. The alienation was (0.14) (Alam, p. 543, 2009). So the test is characterized by high stability and is ready for implementation.

Fifth: The statistical methods used

The researcher used statistical methods in the research procedures, analyzing its data and interpreting its results using the statistical program Spss.

Chapter Four

Research results, recommendations, and proposals

First: Presenting the results related to the achievement of the first null hypothesis, which states:

A- The arithmetic mean of the scores of the experimental and control group students in the achievement test, as well as the standard deviation and variance, were calculated as shown in Table (22,23) below.

The arithmetic means and standard deviation table of the grades of the students of the two research groups (experimental and control) in the post-achievement test variable.

group	sample size	arithmetic mean	standard deviation
Experimental	28	31,64	2,23
Control	28	21,71	2,81

Table (23) Levene's test (t-test) for the data of the two research groups (experimental and control) in the post achievement test variable

variable	(Levene's test)		Statistical significance at (0.05) level	(t-test) is equal to the two averages		Degree of freedom	Statistical significance at (0.05) level
	Value (F)	indication		(T)Value	significance		
achievement Post test	0.132	0.718	Not statistically significant	14.63	0,000	54	Statistically significant

B- Presenting the result of scientific significance: The researcher found the scientific significance of the effect of the independent variable on the dependent variable using the effect size equation, as shown in Table (24) below.

Table (24) the size of the effect of the strategy of the mobile correspondent on the cognitive achievement test of the practical subject of algae and fungi

The effect of (Mobile Correspondent) strategy on the achievement test	The computed T-value	The quadrature of the T-value	Impact size value	Impact size level
	14,63	214.04	0,80	very good

Second: Presenting the results related to positive thinking and related to the second null hypothesis, which states: To verify the validity of the hypothesis, the researcher extracted the arithmetic mean of the scores of the experimental and control group students in the positive thinking scale, as well as the standard deviation, as shown in Table (25,26) below.

Interpretation of the results

- Interpretation of the results related to the hypothesis: The results of the first hypothesis indicated that there is a statistically significant difference between the experimental group that was studied by the strategy of the mobile correspondent and the control group that was studied in the usual way in the achievement test for the benefit of the experimental group

Conclusion

In light of the results of the current research, the researcher reached the following conclusions:

The implementation of the mobile correspondent strategy in the practical teaching of algae and fungi has a great impact in raising the level of academic achievement among students of the science department/life sciences branch.

Recommendations

The emphasis on familiarizing students in the Faculties of Basic Education with active learning strategies, including the strategy of the mobile correspondent, as it helps them learn modern methods of teaching and apply them to their students as future teachers.

Suggestions

To complete this research, the researcher proposes to conduct a number of the following studies and research:

- 1- Conducting similar studies but in other variables (creative thinking, divergent thinking, and logical thinking).
- 2- Conducting studies similar to the current study, but in different subjects and at other educational stages.
- 3- Conducting a comparative study between the strategy of the mobile correspondent and some other teaching strategies to find out which strategies are most effective in raising the level of achievement and positive thinking among the students.

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