The Effect of the strategy of the fishbowl of the achievement of students of the fifth grade scientific science physics and social intelligence.

Dr. Etmad. N.Fayadh

Director of Quality Assurance and Academic Accreditation - Fallujah University

Summary:

The objective of the research is to identify ttheeffect of the fishbowl strategy on the achievement of students of the fifth grade of physics and their social intelligence.

To achieve this goal, the two Researcher put the following two hypotheses:

1- There is no statistically significant difference at (0.05) between the average scores of the students of the experimental group who study physics using the fishbowl strategy and the grades of the control group students who study the same subject in the usual way on the achievement test.

2- There is no statistically significant difference at (0.05) between the average scores of the students of the experimental group who study physics using the fishbowl strategy and the grades of the control group students who study the same subject in the usual way on the test of social intelligence.

To verify this, a partial experimental design n was selected, And was chosen intentionally Al - Anfal Preparatory School for Girls Sample Research , It is one of the schools of the Center of the General Directorate of Education -Karkh firstTo apply the experiment and randomly selected two divisions of the school to be one experimental group and the number of (34) students and the other group control by (34) students.

The Researcher conducted an equivalence between the students of the two research groups in several variables (intelligence, previous information, and level of social intelligence). After identifying the scientific material, represented in the fifth book Applied Science, which was approved by the Iraqi Ministry of Education for the academic year 2018-2019,(120)behavioral goals were formulated, and he prepared teaching plans for the two research groups, Models of goals and plans were presented to a group of experts and specialists in physics and physics.

He prepared acollection test consisting of (35) paragraphs (30) of the type of multiple choice and (5) paragraphs of the article, and verified its validity after the presentation to agroup of experts and arbitrators, and confirmed the characteristics of psychometric applied to asample survey. It was building atest of social intelligence component (30) items were confirmed its properties of psychometric. The study groups were studied By the article teacher

at the school , which lasted for (10) weeks, which began to be implemented on 1/3/2019,

and ended the application on Thursday 2/5/2019, After the completion of the experiment, the test was applied to the students and the social intelligence test. The results of the experiment showed statistically significant differences at the mean level (0.05) between the average achievement tests and the social intelligence of the experimental group and the control group in favor of the experimental group. In the light of the results, the Researcher came up with multiple conclusions, Including the adoption of the fishbowl strategy in the teaching of physics, And recommended the establishment of training courses from the Ministry of Education to train teachers and teachers of physics on how to employ the fishbowl strategy in education. They suggested that a similar study should be conducted for the present study, which dealt with the fishbowl strategy in other materials and stages.

Search problem:

The problem is illustrated by the students' non-positive attitudes toward physics and their motivation to learn, which is reflected in the level of their achievement of this article, which has become a concern for parents and teachers alike,This is what the Researcherhave touched through the teaching of this subject in the secondary and university stage for many years, and through the

exchange of views with colleagues and parents.The recurrent discussion of poor achievement is due to the fact that the school failed to develop the different aspects of students, And the curriculum and teaching methods followed by most teachers, which emphasizes the side of conservation and memorization and the minimum levels of thinking. TheResearcher see that dealing with the teaching of physics and the difficulties encountered by it requires thinking about the search for methods and strategies of modern teaching to teach in the middle and secondary, And this is consistent with what confirms and call him theories and ideas of modern emphasis on the need for active participation of students in the educational process and encourage them to think at the highest levels,As well as their participation and work in the spirit of the collaborative team, which increases the exchange of experiences between students on the one hand and between students and their teacher on the other hand, increasing social cohesion and social intelligence.

The current research problem arises in the following question:

Is the use of the fishbowl strategy has an effect on the achievement of students of the fifth grade scientific physics and social intelligence?

research importance:

Education is the tool of education in improving the learning environment to reach important educational outcomes, and the

achievement of educational aspirations,This entails understanding the components of the educational process so that appropriate strategies can be developed (Al Hashimi and Taha , 2008 : 29) . Therefore, education is no longer limited to information and acquisition, but beyond that to help students to complete their personality and meet the challenges of the future in a scientific way and according to the foundations of sound scientific thinking (Najjar,2009).And the stage of preparatory study one of the stages of public education and represents the stage of psychological and cognitive construction of students in all its aspects is the outcome of the effects of educational variables, economic, social and intellectual lives during the student's life in the preparatory stage,These variables contribute to the formation of the world of the student and his individual life style and responsive to any change or change in the alerts of the environment affecting him,It is aturning point in which there may be an assertion that embodies itself, embodies its active role, or is lost in its nets and wastes the chances of life that lead to success (Ayyash, 2009, p. 25).Given the expansion in the field of science in general and physics in particular as a result of the scientific and technological revolution,As a result of the spread of education, the development of its institutions, the different level, and the diversity of its objectives and objectives, new strategies have to be found that are flexible and stimulate the student's thinking to be active in his society (Al-Husri and Yusuf, 2000, p. 22).These

strategies are designed to stimulate learner motivation towards learning and help him to interact actively with all elements of the educational environment in an educational situation and to gain experience, knowledge, skills, and values in the simplest possible way (Marei and Al-heela, 2005, p. 21),Among these new strategies is the fishbowl Strategy based on active learning that emphasizes that the student is the focus of the educational process where the student exercises mental processes in thereceive of verbal information and processing and organization to become meaningful and store and then encourage their higher thinking skills ,It also focuses on social skills among learners, and the role of the teacher is to guide, guide and motivate ideas (Qatami, 2013, p. 621).The teacher should be keen to apply the strategy accurately and dynamically by observing the student and follow up in the discussion of a particular topic and the effect on the behavior to encourage students to interact with him, Many educators have emphasized that this method brings many benefits to small discussion groups (fish within the pond or participants) and large discussion groups (fish partners or observations) at one time (suad and others, 2006, p. 145). By employing the fishbowl strategy within the classroom, its effectiveness has proved to be suitable for large numbers of students, It does not discriminate between speakers within the aquarium and the rest of the members outside the aquarium, and it promotes in-depth participation of students with regard to some information.

(www.ghassan-ktait.com/?=270).

This strategy seeks to achieve the following objectives:

1- Developing the personality of the student and enhancing his self-confidence and ability to lead his learning and progress in it and develop his sense of achievement.
2- Improve the exchange of dialogue, views and dialogue among students, helping them to accept each other and increase respect among themselves. (Qatami, 2013, p. 621).
3- Students have the responsibility to learn for themselves individually or through a group.
4- Holds students responsible for data collection on the subject of learning.
5- Training students to practice thinking, expressing opinions and evaluating their learning.
6- Develop the skill of listening respectfully and accepting the opinions of others.
7- Enhancing the sense of belonging to a group of colleagues (jabrukran, 2004, p. 28).

The fishbowl strategy is implemented according to the following steps:

1- Selecting and defining a topic after reading a specific text in the book, or a topic that matches the students' life experiences.

2- Prepare a set of useful and in-depth questions about the selected text or topic.

3- The seating arrangement of the students in two groups will be discussed in the form of a small circle in the middle called participants, and a large group in the form of a ring around the small group (observers) who prepare for the discussion sessions after the small group discussions (fishbowl) (Qatami, 2013, p. 623).

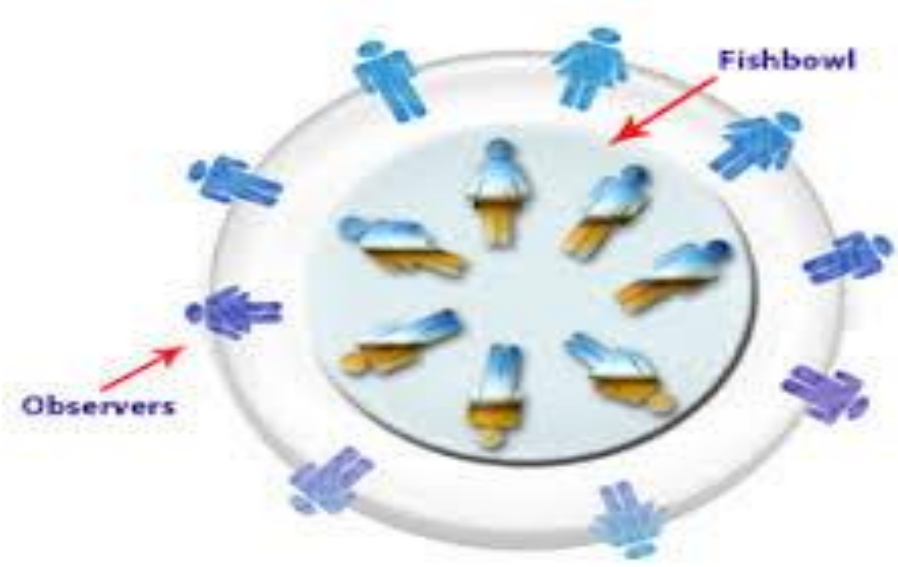

Figure (1) Seating arrangement of students according to the fishbowl strategy

4- The students prepare to start the discussion, while the rest of the students will notice, listen and take notes and ideas.

5- The teacher moves among the students and asks them if you hear and notice all of you, and Limoff sees (that the teacher

should not just roam and stand in class but interact with the student and motivate them)With an empty chair in the discussion panel, to enable one of the observers in the outer ring to participate only at a certain point or ask a question, and then return to his place (lemov,2010,p35).

6- After the discussion, the fish partners were given a period of silence to write down the main ideas they had heard from discussing the fish.

7- Thanked the students of the fish group and asked them to return to their places for a final discussion by raising a number of questions on both groups.

8- At the end of the implementation of the strategy, the teacher can ask the following question to the two groups: What is the good thing from the internal debate or what are the main ideas of the subject today? (Shammari, 2011, p. 41).

This strategy has proven to be effective in teaching different subjects.

In the study of al fatly(2015),The effectiveness of (Fishbowl Strategy) in the development of mental skills and achievement of students in the fourth grade in the Department of Physics - Faculty of Education . The study off Al SYD (2011) revealed the effectiveness of the fishbowl strategy in teaching science to develop understanding of the nature of science and its operations among students in the preparatory stage. Study (2002) Miller, Benz, &

Wysocki proved that the use of the fishbowl strategy "to encourage cooperative learning and the ability to solve problems.A large number of psychologists believe that social success in all areas requires a high level of intelligence. And this success is not only the interaction of the individual with his community, the individual must live in a society;

Because he cannot live in isolation from others,He needs them to strengthen his continued presence and interaction with them through his relationship with others where relationships play alarge role in shaping the personality of the individual acquired through the process of social normalization. (Al-Badri, 2001: 3). All families, media, and schools must take care of social intelligence. To educate them in the manner of correct social behavior in all situations facing the individual with the rules and sound foundations and actions and orientations of humanitarian and religious, and must be directed towards the nurturing and development values and standards of social intelligence .Private and public,Our religion provides us with the best way to develop and nurture social intelligence by encouraging and encouraging people to cooperate, strengthen ties and communicate with people, truthfulness, forgiveness, error, good conduct, talk, mutual respect and awareness. (Zahran, 1984: 228).And the importance of social intelligence took many researches and studies tend toward him, like Hunt study (hunt,1928) which believes that social intelligence is closely linked to positive

intelligence abstract. The study of Foley (Foley), the results have shown that social intelligence increases with age, and that there is a relationship between general intelligence and social intelligence.The study (Qasim 2009) refers to the correlation of social intelligence in the method of problem solving and the study (Al-Azzi and Khazraji 2010), which indicates the existence of a correlation between the positive social intelligence and academic achievement,It means that whenever a student has a level of social intelligence in terms of his ability to interact with others, this helped to increase his self-confidence and his sense of psychological comfort, which is reflected positively on his academic achievement.(Khazraji and Ahlam, 2010: 320).

Based on the above, the importance of the current research is illustrated by the following:

1- It is hoped to contribute to the fishbowl strategy to improve the collection of physics for students of the fifth applied scientific.

2- The research emphasizes the importance of social intelligence as it works to strengthen students' social ties and their fruitful scientific interaction within the classroom.And encourage students to respect the views of others and not to ridicule, which increases self-confidence, and develop their social intelligence.

The objective of the research:

The present research aims at identifying(the effect of the fishbowl strategy on the achievement of the fifth grade students of physics and their social intelligence).

Research hypotheses:

To achieve the objective of the research, the following zero hypotheses were developed:

1- There is no statistically significant difference at (0.05) between the average scores of the experimental group students who study the physics subject using the fishbowl strategy and the grades of the control group students who study the samesubject in the usual way on the collection test.

2- There is no statistically significant difference (0.05) between the average scores of the experimental group students who study physics using the fishbowl strategy and the grades of the control group students who study the same subject in the usual way on the social intelligence test.

Alternative hypotheses:

1. There is a statistically significant difference at the level of (0.05) between the average degree scoring students of the experimental group who study physics using the aquarium strategy and the grades of the female students of the control group who study the same subject in the usual way on the achievement test.

2. There is a statistically significant difference at the level of (0.05) between the average degree scoring students of the experimental group who study physics using the aquarium strategy and the grades of the female students of the control group who study the same subject in the usual way on the social intelligence test.

Search limits:

1- Spatial boundaries: secondary and preparatory schools belonging to the Directorate General of the province of Baghdad-First Karkh.

2- Human Limits: Students of the fifth grade applied in the academic year 2018-2019.

3- Objective Limits: The chapters of the book of physics for the fifth grade Applied Science by the Iraqi Ministry of Education, edition.

Define terms:

1. The fishbowl strategy:

Known by:

- Keck-mcnulty (2004): It is a "teaching strategy based on the principles of active learning that allows group discussion among students and is based on group training and provides direct experience of the collective process of students by observing student groups."

  www.researchgate.net/.../34001894_Group_leadership

- (suad and others, 2006): "A teaching strategy whose work is to form a small group in the form of a circle within a larger student group and to listen to what you say in the light of questions posed by the large group to the small group on a particular subject, issue or issue"suad and others, 2006, p. 145).

Procedural definition of the Aquarium Strategy:

A teaching strategy used by the two Researcher to teach the students of the experimental group the physics of the research sample, by forming a small group of students in the form of a circle within a larger group and the task of listening to what you say in the light of questions posed by the large group on the small group on a physical subject or specific issue.

2- Achievement:

- Definition of (Allam, 2000) the degree of acquisition achieved by students or the level of success they achieve or reach in a particular subject or teaching or teaching field (Allam, 2000: 305).
- Definition of(Abu Jado,2000)The outcome of what students learn after a period of time and can be measured by the degree to which students obtain the achievement test in order to determine the success of the strategy that the teacher sets and plans to achieve his goals and the students' knowledge of translating into grades (Abu Jado, 2000: 469).

- Definition of (Shehata and Zainab, 2003)The amount of information, knowledge or skills that students obtain, expressed in degrees of achievement test prepared in such a way that the measured levels can be measured.(Shehata and Zainab, 2003: 89).
- the two Researcher Definition of to achievement as procedurally:

The degree of cognitive achievement measured in the grades obtained by students of the fifth grade after their answer to the subjects of the achievement test in physics prepared for this purpose.

3-Social Intelligence:

- Gardner (1993) defines it as: "the ability to observe and make distinctions among people, especially between their temperaments, their nature, their motives and purposes, and the ability to act in accordance with their knowledge, such as influencing the group of different individuals to behave in accordance with desired trends such as political and religious leaders,Or psychologists "(Al-Jayyousi, 2004: 430).
- (majeed, 2009) defined it as "the ability to understand and behave in a manner appropriate to the emotions of others and their different mixtures" (majeed, 2009: 23).
- Lacanlale (2013) defined it as "the human ability to understand what is happening in the world and to respond to

it in an effective way, both personally and socially" (Lacanlale, 2013: 263).

The definition of social intelligence Researcher procedurally as follows:

Is the ability of students of the fifth grade scientific to improve social relations between them, and work as a team collaborator, measured by the degree obtained by students in the scale of social intelligence prepared for this purpose.

*** Research methodology and procedures:**

The Researcher followed the experimental approach in their current research, because it is an appropriate method to achieve the objective of the research and its hypotheses and procedures included these procedures:

- Experimental design:

The two Researcher adopted a experimental design with partial control of the two sets of post-test because it is suitable for the current research conditions and according to the following format:

the group	Independent variable	The dependent variable
Experimental	fishbowl strategy	Achievement,Social Intelligence
Control	The usual method	

Schema (1) experimental design for research

-The research community and its design:

The current research community consists of the preparatory and secondary schools for girls belonging to the Directorate General of Education Baghdad Governorate- first Karkh.

The two Researcher chose Al-Anfal Preparatory School for Girls to apply the experiment to express the cooperation and desire of the school administration to apply new ideas and modern methods of teaching,There are two divisions of the fifth grade applied science, and the school students from one residential neighborhood are close in terms of social and cultural level.In the random sampling method, (A) was chosen to represent the experimental group. It consisted of (34) female students who will study physics using (fishbowl Strategy) and (B) to represent the control group and(34) students who will study the same subject in the usual way.

- **Equal search groups:**

Before attempting to experiment, the two Researcher sought to establish equivalence between the two research groups in some variables that may affect the course of the experiment and its results:

2- Social Intelligence

3- Previous academic achievement in Physics

4- intelligence

The two groups were found to be equal in all variables as shown in Table(1)

Table (1)

parity data for two groups

	Intelligence		Previous achievement		Social Intelligence	
Groups	Experimental	Control	Experimental	Control	Experimental	Control
medium	34.07	34.08	12.76	12.24	40.17	40.44
deviation	8.10	7.60	4.04	3.16	5.65	5.67
t-test	0.10		0.585		0.193	
the decision	Non cursor		Non cursor		Non cursor	

- Preparation of research requirements:

1- **Determination of scientific material**

The scientific material was determined according to the vocabulary of the textbook which was approved by the Iraqi Ministry of Education for students of Applied Science fifth for the academic year 2018-2019, namely the classes.

2- **Formulation of behavioral goals**

A total of (120) behavioral goals were achieved with(90) goals in the cognitive field, (19) in the field and(11) in the emotional field. All the goals achieved a percentage of agreement (82%) and more of the opinions of experts and arbitrators And specialists in

education and teaching methods, physics and psychological and educational sciences. Annex (1) and Annex (2).

3- **Preparation of teaching plans**

Teaching plans for the experimental and control groups were prepared and models were presented to the group of arbitrators for their evaluation. In light of their views, some modifications were made.

- Search tool setup:

1. **Building the achievement test**:

An objective test has been prepared covering the educational content and behavioral objectives in calculated percentages through a test map. It consists of (30) thematic paragraphs of multiple choice type, (5) paragraphs of reference, and the final grade of the test ranges from (0 - 50)

The test was verified by presenting it to the experts and through the results of the exploratory application, which was conducted on a random sample, which was randomly selected from (50) students at (Umm Salma Secondary School for girls) from the research community on Monday, 15/4/2019,

1- The veracity of the test paragraphs and instructions was verified. It was clear that the paragraphs were clear as well as instructions.

2- The time to answer the test was determined. The average response time for the first three female students and the last three students was only 50 minutes.

3- Statistical analysis of test paragraphs:

After correcting the answer papers and arranging the grades down, and since the size of the sample is small does not exceed (100) students so 50% of the higher grades were identified as a higher group, and 50% of the lower grades as a minimum group, and calculated:

A -The difficulty coefficient of the paragraphs ranged from (0.28 - 0.64) to the substantive paragraphs and (0.29 0.29) for the paragraphs.

B - The coefficient of paragraph differentiation was between (0.25 - 0.61) for the substantive paragraphs, and (0,021,049) of the paragraphs.

C -The effectiveness of the wrong alternatives were all negative, which indicates that it was effective because the students of the lower group selected by more than the students of the upper group.

D -The test was fixed using the Alpha-Cronbach formula and was 0.79, which is a GIG coefficient.Based on the consensus of the experts, the score was 0.75 as the limit for the qualitative collection. Thus, the test is finalized and ready for application (Annex 3).

2- **Emotional intelligence test:**

The social intelligence test was built according to the following steps:

1- Review literature on multiple intelligences and social intelligence exclusively

2- Review published social intelligence tests.

3- Prepare (30) statements of the report and put three alternatives (OK, I do not know, disagree) and grades (2,1,0) respectively, so that the final test score ranges from (60 - 0).

4- The validity of the test was confirmed by presenting it to the experts. The proportion of the agreement was approved (80%) by the experts. Accordingly, the wording of some paragraphs was modified.

5- To ascertain the cycometric characteristics through the results of the pilot application of the test, which was applied on a random sample randomly selected by (50) female students (Umm Salma Secondary School for Girls) from the research community on Tuesday 16/4/2019.

6- a - The coefficient of paragraph differentiation was between (0.30 - 0.56) for the substantive paragraphs, and (0,021,049) of the paragraphs.

7- C -The effectiveness of the wrong alternatives were all negative, which indicates that it was effective because the students of the lower group selected by more than the students of the upper group.

8- D -The test was fixed using the Alpha-Cronbach formula and was 0.81, which is a GIG coefficient..

Thus, the test is finalized and ready for application (Annex 4).

- Procedures for applying the experiment:

1 - The experiment was applied to the students of the two groups (experimental and control) from 1/3/2019 to 3/5/2019.

2 -The weekly schedule of the course was organized in cooperation with the school administration and thesubject teacher, which was trained in teaching the material for both groups using the teaching plans prepared under the supervision of the two Researcher.

3-After the completion of teaching all the scientific subjects, the test was applied on Sunday, and the social intelligence test on Monday for both groups at the same time.

*** Statistical means:**

The t-test equation was used for two independent samples to detect the difference between the two groups, the Alpha Cronbach equation for the stability of the achievement test and the social intelligence test.

Statistical processes were carried out using the statistical program (Spss.v18)

- View and interpret the results:

1- **View the results:**

After correcting the student answer papers and monitoring the grades, they were analyzed by the Statistical Program Spss and the results will be presented and interpreted according to the two agency assumptions:

1. Regarding the first hypothesis that "there is no statistically significant difference at the level of (0.05) between the average degrees of the experimental group students who study physics using the strategy of the aquarium and the grades of the students of the control group who study the same subject in the usual way on Collection test.))

Through table 2, it is clear that the calculated t-test value (15.909) is greater than the t-test tabal value (2), which means that there is a statistically significant difference in favor of the average experimental group at the level of 0.05 and the degree of freedom 66.

degree indication level	degree of freedom	t-test	Standard deviation	The average	The average group
0.05	66	15.909	2.731	44.141	Experimental
			4.658	29.417	Officer

This shows that the students of the experimental group, which was studied using the aquarium strategy, outperformed the female officers of the control group, which was studied in the traditional way.

Thus rejecting the first zero hypothesis and accepting the first alternative hypothesis which states: (There is a statistically significant difference at the level of (0.05) between the average

degrees of the experimental group students who study physics using the strategy of the aquarium and the grades of the students of the control group who They study the same subject in the usual way on the collection test.)

2. With regard to the second zero hypothesis, which states that (there is no statistically significant difference at the level of indication (0.05) between the average degree of students of the experimental collection sought using the aquarium strategy and the average degree of student degrees The control group that was teded in the usual way in the social intelligence test.)

Through table 3, it is clear that the calculated t-test value (7.65) is greater than the t-test tabal value (2), which means that there is a statistically significant difference in favor of the average experimental group at the level of 0.05 and the degree of freedom66.

Table (3)

T test for the two groups researching the social intelligence test

degree indication level	degree of freedom	t-test	Standard deviation	The average	The average group
0.05	66	7.65	3.684	50.382	Experimental
			6.438	40.617	Officer

Thus rejecting the second zero hypothesis and accepting the second alternative hypothesis which states: (There is a statistically

significant difference at the level of (0.05) between the average degrees of the experimental group students who study physics using the strategy of the aquarium and the grades of the students of the control group who They study the same subject in the usual way on a social intelligence test.

2- **Interpretation of results**

Based on the above results, the superiority of the female students of the experimental group over the female students of the control group in the achievement and social intelligence tests can be attributed to several factors, including:

1. Increasing the motivation of female students to learn that the use of the aquarium strategy as a new and exciting strategy has led to the interest of the students and their excitement for the study.

2. The change in the seats of the students to two circles contributed to the creation of an atmosphere of interaction and suspense within the class and departure from the routine used in our schools, which increased the interaction of female students with each other and led to the improvement of social intelligence, thus agreeing with the results of the study (Khazraji and Ahlam, 2010)

3. The strategy of the aquarium is consistent with the basis of modern education in making the student the focus of the educational process, and that increasing the level of participation and interaction of female students with the school and the educational attitude increased their morale, which in turn increased the confidence of the

students themselves and their abilities, which positively affects the Collection, thus consistent with the results of the Fatli study (20

Conclusions:

In light of the findings of the current research, it is possible to conclude the following:

1. The use of the aquarium strategy within the limits of the current research proved its effect in increasing the achievement of the fifth student applied science in the subject of physics.

2. This strategy has provided students with the opportunity to form good relationships as a result of increased communication between them and by raising questions, exchanging opinions and expressing views, as well as sitting face to face since the beginning of the group work, which created that familiarity and interaction between them, which led to improvement Their social intelligence

3. Using the aquarium strategy requires more effort and time from the school than is required in the usual way.

Recommendations:

Through the results, the researcher recommends:

1. Encourage teachers to use modern strategies, including aquarium strategy.

2. Holding training courses for teachers on how to use modern strategies, including aquarium strategy, due to their impact and importance on academic achievement and social intelligence

Proposals:

To complete this study, the researcher suggests conducting other research such as:

1. Re-conduct this research with its variables at other stages of study.

2. Conduct a study aimed at finding out the impact of the aquarium strategy on variables other than academic achievement such as correcting the wrong understanding of physical concepts, the trend towards physics, and the ability to make decisions..... Etc

*** Sources**

- Abu Jado, Saleh Mohammed, 2003, Educational Psychology, I2, Dar al-Marcha, Amman.
- Badri, Nadia AmerKarim (2001): Social intelligence and its relationship to some dimensions of personality among middle **s**chool students**,** unpublished Doctoral thesis, Faculty of Education, Basra University.
- Jaber, Lina and MahaQaraan, 2004, Learning Patterns (Theory and Practice), Al-Qattan Center for Educational Research and Development, Ramallah, Palestine, I1
- Exclusive, Ali Munir and Yousef Al-Anizi (2000) General Teaching Methods, Al Falah Publishing and Distribution Library, United Arab Emirates.
- Al-Khazraji, Damaya Ibrahim Mohammed, And Hala M. Mehidi Abdullah Al-Azi(2010), Iq- Social and its relationship to achievement among the students of the Institute of Teacher

Preparation, Diyala Magazine, issue 47. 1499 (: Social Psychology, I5, Book scientist, Cairo.

- H.E., Joudat Ahmed, et al. (2006), Active Learning between Theory and Practice, Al Shorouk Publishing and Distribution House, Jordan.
- Mr. Marwa Ali, 2011, Effectiveness of the Aquarium Strategy in teaching science to develop understanding the nature of science and its processes in the middle school student, unpublished master's thesis, Suez Canal University, Cairo, .
- Shehata, Ahmed Ammar and Zainab al-Najjar, 2003, Dictionary of Educational and Psychological Terminology, I1, Egyptian-Lebanese House, Cairo.
- Allam, Salaheddine Mahmoud, 2000, the measurement and the educational and psychological calendar of its basics and contemporary trends, i1, The House of Arab Thought, Cairo.
- Odeh, Ahmed Suleiman and Fathi Hassan Malkawi, 1998, Measurement and Evaluation in the Teaching Process, I2, Dar al-Amal, Amman
- Ayyash, Laith Mohammed (2009), Cognitive Style and Its Relationship to Creativity,I1, Safaa Publishing and Distribution House, Amman.
- Al-Fatli, Samah Abdul Karim Abbas 2015, "Strategy Fishbowl Aquarium Strategy and its effectiveness in developing the

mental skills of students of the Department of Physics and Their Academic Achievement", the Journal of the Faculty of Basic Education for Educational and Human Sciences / Babylon University August/Issue/22.

- Qatami, Youssef (2013), Learning and Cognitive Learning Strategies,i1, Dar Al-Meseea, Jordan.
- Merhi, Tawfiq Ahmed, Mohammed Mahmoud Al-Hadra (2005), General Teaching Methods, I2, Al-Salapublishing and Distribution House, Amman, Jordan.
- Majid, Sawsan Shaker (2000, Development and Teaching multiple intelligences for children, i1
- Safaa Publishing and Distribution House, Amman, Jordan.
- Al-Najjar, Ramadan Salem (2009), Contemporary Secondary Education,i1, Al-Marcha Publishing and Distribution House, Amman, Jordan.
- Al-Hashimi, Abdul Rahman, Taha Ali Hussein al-Dulaimi (2008), modern strategies in the art of teaching, T2, Curriculum Publishing House, Amman, Jordan.
- -Erwin.p.Lacanlalek (2013)"Development and validation of a social Intelligence inventory".
- Miller, Richard L.; Benz, Joseph J.; The government's efforts to address the crisis have been a source of concern for the international security and security of the international security

and security of the international security and security of the international security and security council. Reports - Research

- Internet sources
- www.ghassan-ktait.com/?=270.
- www.researchgate.net/.../34001894_Group_leadership