

The Effect of the Active Thinking Model on the Achievement of the First Grade Students in Science

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ABSTRACT

The current research aimed at identify effect of effect of Active Thinking Model strategy in obtaining Science material for First grade students and verifying the hypothesis validity, the researcher chose the experimental design (of partial control) and the research sample was chosen deliberately from the research population represented by Babil governorate students for the academic year (2017- 2018) and for application of the experiment, the sample included (60) students distributed on two groups equally and the researcher statistically equals in the following changes:(age in months , Rfin intelligence test, marks for the previous academic year) and outcome test was set included (40) objective Items of multiple test type, the researcher suitable used Ssps, the research showed superiority of the experimental group who studied according to the outcome test.

Keywords: *Active Thinking Model, Achievement, First Grade Students, Science*

INTRODUCTION

Brain is the physical machine of thinking and the ability to generate human ability to perception and expression as well as understanding the meanings and respond to instructions. The human being is only a notebook, and hence the discovery of the scale of electrical brain to a certain understanding of how the brain works, and that neurons are the basis of learning and memory. The brain is a member of learning and thinking. Therefore, the brain is the floor of desire, the place of learning, memory, and knowledge of objects, people, images and colors. It is the center of consciousness of the body. It is the voice to the human self and its environment. It describes that distinguishes, compares, reflects and dreams. Each experience and new experience passes by the individual really changes from the chemical composition of the brain to the brain, and that the receiving of the brain is exciting of any kind. The process of communication between the neurons

is activated. Thinking is an important mental process. It is the foundation of the progress of societies. It is a series of mental activities that the brain performs when it encounters one or more stimuli received by the five senses. The researchers that count thought activity to solve the problem and another mental treatment of sensory input or interaction between the mind of the learner and information towards a particular goal, and thinking a series of mental activities performed by the brain when faced with an exciting being received by one or more of the senses. Active thinking is an educational model based on the Vicksotsky and Sternberg tripartite theories, consisting of eight steps (gathering information, identifying and discriminating, generating ideas, decision making, implementation, calendaring, communication, learning from experience), helping students to think effectively in an atmosphere of atmosphere of social interaction.

METHODOLOGY

It includes a presentation of the procedures that have been carried out to achieve the research objectives, starting from the research methodology and experimental design, defining the research community and its design, the equivalence of the research groups (experimental

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and control), preparation of the research requirements and tools.

The Pilot design for research

It includes one independent variable (the active thinking model), the usual method, and the dependent variable. Therefore, the researchers used experimental design with partial adjustment of two equal groups, one experimental and the other control.

Search community and design

The current research community represents the students of the first grade intermediate in the intermediate day schools of the General Directorate of Education in the province of Babylon for the academic year (2017 - 2018), while the same research has chosen the researcher (School Masoudi) in the Alexandria area in the province of Babylon deliberately to conduct research, After selecting the researcher (Masoudi school) to apply the experiment, as it consists of three people for the first grade intermediate (A, B, C), was selected (B) random sampling method to represent the experimental group and the number of students (36) student students will study according to (Active thinking model), Division (c) control group and number Its students are 38 students who will study their students according to the usual method.

RESULTS AND DISCUSSION

Age time calculated in moths: according to students age mean ,age mean of the experimental group (170,27) mark/month while mean of the control group (170.60) mark using t –test for two independent samples to know the difference significance between the two groups, it has appeared that there is no difference of statistical significance at (0.05) significance level, where calculated t value(0.788) smaller than tabular t value(2) and freedom degree (58) and this indicated that the research two groups are equivalent in the variable and the following table illustrated. Students marks in Science subject for the previous academic year: the researcher obtained the marks from the mark record and after obtain the marks) the mean and standard deviation were extracted, where mean of the experimental group(62.60) with standard deviation(13.18) while mean for the control group(62.76) with standard deviation(12.99) and to know the difference the equivalent was performed using (t-test) for two independent samples, it has

appeared no different of statistical significance between the two groups, where tabular t value(2.000) greater than (0.835) at significance level(0.05) with freedom(58).

Adjusting extraneous variables

In spite of the achievement of the equivalence of the two groups of research in some variables that are believed to affect the course of the experiment, in order to avoid the effect of some extraneous variables in the course of the experiment and some of these variables: (Accidents associated with the experiment: Experiment in the search did not experience any emergency or accident hinders Experimental Expiration: No case of interruption or transfer of any students throughout the experiment. Sample selection: The two research groups were chosen in the right way and the two groups were confirmed. The maturity factor: The duration of the experiment was uniform between the two research groups. So what happens N growth will return to the members of the two groups at the same level, so it was not for this factor in the impact of the research, the impact of the experimental procedures: The researchers work on reducing the impact of the experimental procedures that could affect the dependent variable during the course of the experiment).

The pilot application for the test of achievement

The first test was carried out on a group of first grade students from the non-research sample. The number of students was 30 students. The purpose of this test was to know the clarity of the test instructions and instructions, the comprehension of the test paragraphs for the students and the calculation of the time required for the test. The researchers recorded the exit time for all students. In calculating the arithmetic mean of time, it was found that the time needed to answer all the test paragraphs was (43) minutes.

The second test application: The test was applied to a sample of 100 students in the first grade of the average non-research sample. The purpose of the test is to analyze the statistical achievement test paragraphs, namely paragraph difficulty, paragraph discrimination, effectiveness of the wrong alternatives.

Statistical analysis of the test scores

The difficulty of the paragraph: The statistical analysis of the test test paragraphs found that the

coefficient of difficulty of the paragraphs ranged from (0.35 - 0.70) and thus all the test scores are good and difficult.

The distinction of the paragraph

The important characteristics that must be provided in the paragraphs of the test is the characteristic of discrimination and means the possibility of items or paragraphs to identify individual differences of students and the test items are valid as the coefficient of discrimination of items is (20,0) and above, (0.32 - 0.65), so the test scores are well marked and appropriate.

Effectiveness of the wrong alternatives: The researchers conducted a statistical analysis (27% and 27%) to find the effectiveness of the wrong alternatives ranging from -0.11 to -0.3.

The stability of the test: The coefficient of the stability of the test depends on the relationship between each paragraph or between the paragraphs of the test all, and this is evidenced by the stability of degrees and consistency of paragraphs, and can calculate the stability of the test using the legal relationship between the units of the test, and the characteristics of the good test to be stable and true and even be The test paragraphs have a clear meaning that must be both true and consistent. Stability indicates that the test scores match once again, ie, it indicates the balance and stability of students' grades in the test.

Methods of finding the stability of the test:

The method of fragmentation: This method is one of the most widely used methods, because it avoids the disadvantages of some other methods. In order to obtain two equal images of the test, the researchers divided the test paragraphs into individual and marital paragraphs and chose the answers of the sample of the survey sample (100) Pearson correlation between individual and marital scores was obtained by the coefficient of stability (0.77). Since the half-stability coefficient of the test did not measure the total homogeneity of the test (because it is only half stability), the correction was done using the Spearman-Brown coefficient, Lg (0.87) is a good stability coefficient from the point of specialist's view.

Koder-Richardson Method 20: The Koder-Richardson equation was applied according to student scores. The researcher found that the test stability value

is (0.82) and it is a good value and suitable to keep test is stable.

Application of the research tool: The experimental and control groups were informed of the date of application of the test, one week before it was carried out, and it was applied after the completion of teaching the specific material for the two research groups at one time. The researchers supervised the application of the test.

Statistical methods: The researchers used the T-test equation for two independent samples, and the ki-square, to make the parity between the experimental and control groups in the following variables: (the age of time calculated in months, the achievement of students in half the year in science, the intelligence test).

Statistical instrument: T-test for two separate groups and Coefficient of ease and difficulty for distinction item, wrong alternative activity and Kai square (χ^2). In order to verify (zero hypothesis) which stated that (there is no difference with statistical significance at significance level (0,05) between average degree of students achievement of experiment group who study Science lesson according to Active Thinking Model and average degree of students achievement of control group who taught the same subject in traditional method in test of achievement). Average degree of both groups were calculated which showed that average degree of students achievement of experiment group was (30,16) degree with standard deviation of (4,12) whereas average degree of students achievement of control group was (25,46) degree with standard deviation of (2,52) . In order to identify statistical difference significance between average degree of both groups, the researcher used (T-test) for two independent samples as statistical instrument to display the results Table 4. Table (4) showed existence of Statistical significance between average degree of achievement test for both experimental and control groups .Superiority was for favor of control group students , as calculated (t-test) was (3,66) which was the bigger than tabular t-test (2,00) at significance level (0,05) with free degree of (58) which indicated that Active Thinking Model has positive effect upon students achievement in subject of Science. accordingly this result refused first zero hypothesis .

Explanation of the results

Using Active Thinking Model has helped the students

to gain required knowledge and participated in class room, creating positive directions towards the subject, respect views, interaction and active participation reduces shy element and encourage the students to more participation and express new ideas. Active Thinking Model has helped in organizing study item, reformation,

gathering and crystalized in new image that facilitate the subject to the student to understand. Using Active Thinking Model has stimulated psychological motives of experiment group student to be alert and think and work hard to achieve success.

Table 1. Mean, difference, calculated and tabular t value for the two groups of the research in intelligence variable.

Group	Number of the sample	mean	difference	T value		Freedom degree	Statistical significance
				calculated	Tabular		
Experimental	30	45.50	32.26	0.34	2.00	58	Non –significant at level 0.05
Control	30	45.90	8.85				

Table 2. Mean, standard deviation, difference, calculated and tabular of t for the experimental and control groups in age time calculated in months.

Group	Number of the sample	Mean	S.D	Difference	Freedom degree	T value		Statistical significance 0.05
						calculated	Tabular	
Experimental	30	170.27	11.64	135.58	58	0.788	2	Not significant
Control	30	170.60	13.29	176.66				

Table 3. For mean and standard deviation and calculated and tabular T- value in variable of previous general degree for Science subject

Total	Size of the sample	Mean	standard deviation	Degree of freedom	T- value		Level of significance (0,05)
					Calculated	Tabular	
Experimental	30	62,60	13,18	58	0,835	2,00	Not functional
Control	30	62.76	12.19				

Table 4. The mean and standard deviation and calculated and tabular T- value of degree of both groups (experiment and control) in achievement test.

Total	Size of the sample	Mean	standard deviation	Degree of freedom	T- value		Level of significance (0,05)
					Calculated	Tabular	
Experimental	30	30,16	4,12	58	3,66	2,00	Statistical significance
Control	30	25,46	2,52				

CONCLUSION

Using Active Thinking Model with in the limitation of the research has proved its effectiveness in raising achievement level. Also growing logical thinking of the , First class students in Science subject. Teaching according to Active Thinking Model displayed positive effectiveness by creating interaction sphere between the teacher and the students in Science history subject, and giving opportunity to the participation in encouraging activities for more thinking about discussed information in the class room. Teaching according to Active Thinking Model will develop logical thinking with the student by provide opportunity for free express of opinion with positive results .Also one minute strategy allow the student to response to the intellectual questions actively.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Basic Education, University of Babylon, Babylon Government, Hillah city, Iraq and all experiments were carried out in accordance with approved guidelines.

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