

The Effectiveness of IDEAL Model in Rehabilitation and Acquisition of Physics among Fourth Scientific Grade Students

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Abstract

This research aims to identify the effectiveness of the ideal model in the acquisition of physical concepts among fourth grade students in physics. The results indicate an increase in the acquisition of physical concepts due to the use of the ideal educational model, which contributed to raising the level of learners after there was a weakness in the acquisition of concepts. Several recommendations have also been made in this regard.

Keywords: ideal model, physical concept acquisition test

Introduction

Over the past years, scientists have begun to develop educational models to clarify problem solving processes in a sophisticated way, including the ideal model and in order to develop educational fields in order to make the learner have the ability to know physical concepts better and faster. The ideal model is one of the broad models of problem solving as a guide to improve thinking and learning through problem solving. this model can be a useful framework for teaching students the concepts and problem solving collectively. The teaching of scientific concepts has become a major goal in the nature of science teaching, specialists emphasize the importance of scientific concepts, as they help to understand science easily for learners, concepts are the basic building blocks in building principles, generalizations and scientific theories by reducing a huge amount of facts, facilitate the transfer of the impact of learning by applying them in different situations several times, and for the concept It is important and its components. The chain of concept acquisition, use, enrichment and revision is continuous as long as we are able to think, and our store of concepts flows faster or slower depending on factors such as our new and previous experiences and the formal education acquired by the learner. [5 – 7]

The importance of the educational model is due to the fact that it consists of a set of educational methods, where we find that the educational model contains a set of materials, tools, activities and means that change the focus of attention of the teacher to the learner in a way that contributes to the development of the learning process and achieving great success in the educational process. The reason for the multiplicity of learning models and teaching methods is the difference in the nature of learners and the difference between their cognitive level and their diversity, which makes teachers look for effective learning models and use them in order to know their positive and negative impact on the teacher and learner and compare them with the old traditional methods, and the more learning models are suitable for different learning situations and consistent with the nature of the learner, chronological age and cognitive levels, the more useful, broader and deeper the goals achieved, as the success of Education largely depends on the correctness of the method used in teaching or the educational model that the teacher relies on in processing educational activities to achieve the main goal From delivering information and knowledge to the learner in the simplest way, with the least time and effort, and achieving the desired goals of the lesson

This study aims to identify the level of students in acquiring physical concepts using educational models, the extent of increasing their achievement and the appropriate teaching method for them. [6 – 8]

Curriculum

The researcher followed the experimental method because it is the appropriate method for the research goal, which can be summarized in identifying the effectiveness of the ideal model in the acquisition of physical concepts among fourth grade students in physics. The research sample included (65 male students) and, as shown in Table No. (3), the students were divided into two experimental and control groups of preparatory stages. it was used in the selection of the research community and the sample in a random way. the preparation of this research requires the preparation of research tools that must include criteria by which the effectiveness of the ideal model in the acquisition of physical concepts is determined. therefore, the researcher has followed the following steps to develop these tools: review previous studies and survey the opinions of experts and specialists in the fields of psychology and methods of teaching science; in light of these steps, research tools have been

developed to test the acquisition of physical concepts through aspects of the following: remembering – discriminating - The application) has been tested. The researcher prepared the concept acquisition test in the physics subject consisting of (45 paragraphs) in its final form and verified their truthfulness, consistency and application after the end of the experiment .The statistical program SPSS and Excel were used to calculate the t-test for two independent samples, the chi-square, (Kuder-Richard son20), the coefficient of difficulty of paragraphs, the coefficient of discrimination, the effectiveness of erroneous substitutions and the Cronbach's Alpha coefficient, h2.The standard deviation and arithmetic mean were also used, as in Table No. (4) and Table No. (5), as well as the Effect Size value)) as in Table No. (6)[1 – 4]

Results and Discussion

To verify the validity of this null hypothesis, the researcher used the T-test of two independent samples to compare the average scores of students of the experimental group and the average scores of students of the control group in the dimensional acquisition of physical concepts test, as in Table No. (2) that the average acquisition scores of students of the Experimental Group amounted to (33.156) degrees with a deviation of (4.174), while the average acquisition scores of students of the control group amounted to (26.303)with a deviation of (6.317) , That the average scores of the students of the experimental group were higher than the average scores of the students of the control group in the test of acquiring physical concepts, it turned out that the difference between them was statistically significant at the level of significance (05'0), as the T-value of patronage (5.143), which is greater than the tabular t-value (00'2) at the degree of freedom (63), thus rejecting the first null hypothesis , The alternative hypothesis is accepted, that is, there is a difference between the experimental and control groups, and therefore the first null hypothesis is rejected and the alternative is accepted, and this means that the students of the experimental group who studied using the ideal model outperformed the students of the control group who studied the traditional way of testing the acquisition of concepts physics subject .To verify the validity of this null hypothesis, the researcher used the T-test of two independent samples to compare the average scores of students of the experimental group and the average scores of students of the control group in the dimensional acquisition of physical concepts test, as in Table No. (2) that the average acquisition scores of students of the Experimental Group amounted to (33.156) degrees with a deviation of (4.174), while the average acquisition scores of students of the control group amounted to (26.303)with a deviation of (6.317) , That the average scores of the students of the experimental group were higher than the average scores of the students of the control group in the test of acquiring physical concepts, it turned out that the difference between them was statistically significant at the level of significance (05'0), as the T-value of patronage (5.143), which is greater than the tabular t-value (00'2) at the degree of freedom (63), thus rejecting the first null hypothesis , The alternative hypothesis is accepted, that is, there is a difference between the experimental and control groups, and therefore the first null hypothesis is rejected and the alternative is accepted, and this means that the students of the experimental group who studied using the ideal model outperformed the students of the control group who studied the traditional way of testing the acquisition of concepts physics subject . [5 – 12]

Table 1. Build search variables

The dependent variable	The independent variable	Equivalence of the two groups	Group
Acquisition of concepts	IDEAL Model	1. Age in months 2. Completion of half of the academic year in the subject of physics 3. Intelligence 4. The scale of dexterous thinking	Empiricism
	The usual way		The control

Table 2. The arithmetic mean, deviation and (t) calculated obtained by the students of the two research groups in the test of acquisition of physical-dimensional concepts.

The index is a function at the level of 0,05	The T-value		Degree of freedom	Deviation	Arithmetic mean	The sample	Group
	Scheduler eferences	Calculated					

Function	2.00	5.143	63	4.174	33.156	32	Empiricism
				6.317	26.303	33	The control

Table 3. Distribution of students of the research sample between the experimental and control groups

Number after elimination	The excluded	Number before exclusion	Division	Group
32	3	35	A	Empiricism
33	2	35	C	The control
65	5	70	Total	

Table 4. Shows the arithmetic mean, standard deviation, t-value and statistical significance of the chronological age scores of the two research groups

Statistical significance (0.05)	The T-value		Degree of freedom	Standard deviation	Arithmetic mean	Number of students	Group
	Schedule references	Calculated					
Statistically non-functional	2.00	1.302	63	2.879	190.813	32	Empiricism
				3.672	191.978	33	The control

Table 4. Shows the arithmetic mean, standard deviation, t-value and statistical significance of the half-year test scores of the two research groups:

Statistical significance (0.05)	The T-value		Degree of freedom	Standard deviation	Arithmetic mean	Number of students	Group
	Schedule references	Calculated					
Statistically non-functional	2.00	1.173	63	8.224	71.094	32	Empiricism
				9.237	68.545	33	The control

Table 5 . Shows the arithmetic mean, standard deviation and t-value of the scores of the two research groups

Statistical significance (0.05)	The T-value		Degree of freedom	Standard deviation	Arithmetic mean	Number of students	Group
Statistically	Schedule	Calculated	63	4.587	39.844	32	Empiricism

non-functional	references						
	2.00	1.561		6.905	42.121	33	The control

Table .6The value of the effect size ((Effect Size)) and the amount of the effect size of the ideal model in the acquisition of physical concepts

The amount of impact	Effect Size)(Value	The dependent variable	The independent variable
large	0.5438	Acquisition of physical concepts	Ideal model

Conclusion

In light of the results reached by the researcher, he summarized the conclusions to the deification points, including: teaching using the ideal educational model led to an increase in the acquisition of concepts among fourth-graders in the subject of physics, teaching the ideal educational model contributed to raising the level of acquisition of physical concepts as

The results of the research indicate the superiority of the students of the experimental group who studied according to the ideal model over the students of the control group who studied in the traditional way of acquiring physical concepts .this result agreed with the results of the study (Firas, 2013), the study (Maryam, 2015) and the study (Qusay, 2019). this can be explained through the steps of the ideal model because it put the students in a new position other than the traditional position of the students, where the researcher found through teaching with the ideal model that it contributed to increasing students ' self-reliance. And the presentation of the scientific material in a way that excites and increases their self-confidence, which pushes them to active positive participation.

The variety of thinking skills included in the material or the dialogue, interaction and exchange of opinions that took place during the course of the article has significantly reduced the automatic memorization and preservation of information. [15 – 18]

- *Contribute to improving the level of students in the process of acquiring physical concepts and making learning meaningful and based on understanding, thus gaining skills to reflect the model of their actions in different learning situations, and this can be explained systematically and sequentially and consolidate knowledge in their minds.
- •This result, in light of the many positives achieved by the model, enables students to analyze the problem situations into their basic elements, and then reconnect them in a logical way that ultimately leads to reaching the best solution.
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- *Helped to build a collaborative atmosphere within the classroom, because working in groups depends on interactive discussion between students of the same group and this led to an increase in students ' self-confidence, especially inactive and taciturn students. [19 – 20]
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