

Investigating of the effects of using conceptual plans in improving science lesson learning for male students of sixth grade in primary schools of Ferdows Town.

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Abstract

This semi official study has been done with aim of using the effect amount of conceptual plan in learning science lesson for male students in sixth grade. 30 students were grouped with sampling way available in two groups as witness and experiment. After performing pre-test , both groups were taught based on usual way and conceptual plan way for 8 sessions and during 2 months respectively, then post-test was done. The score tests by means of spss software and t-test with independent samples analyzed statistically. The results showed that there's a meaningful difference between pre-test scores to five percent error wasn't observed . But after conducting a variable independent meaningful difference between post-test and pre-test and post test difference was observed, and t-measured amounts were more than critical amounts. The findings of this research showd education based on conceptual plan has a positive effect in comparison to the usual way on academic progress in science lesson.

Keywords:The education ways , Conceptual plan , Meaningful learning , Structural evaluation , Teaching and learning process

Introduction:

Today, we observe changes in content and education ways in philosophy. In new educational approach, knowledge transition by teacher and text book to memory, repetition and reward has given its role to knowledge acquisition through meaningful learning. This change is done by passing from the behaviorism point of view to cognition prospective and especially structuralism point of view. (according to Messrabadi)

Assible suggested an idea for a pre organizer to help the students in order to combine their opinions with new concepts and materials. According to Assible pre-organizer can be like oral phrases or drawing. In both cases , pre organizer can design a " mental latticework " in order to provide new information learning . Assible believed that learning is the whole to part . (Maleki)

This prospective emphasize on thoughtful students. In this view, learning is a dynamic and active process. The students actively relate the new facts with what they have learned and act to gain knowledge. It is supposed the knowledge depends on the learner. Structralism emphasize on value of making knowledge through a relation to pre known with new learned . In this prospective is seeking a relation between new and old learning . The persons, then follow their mental plan. In new learning these mental plans revise, develop and reconstruct. (Ahmadi)

In constructralism , the educational experts emphasize on using new approaches based learner. (Haidari , et all). The teaching based learner is an education which in learners with the help of teacher undertake the responsibility of comprehension. (Seif) One of the new educational approaches has a very close relationship to philosophy of constructralism. To employ the conceptual plan in various steps of education from plan , and prepare content and syllabus to performance and evaluation. (Rahmani, et all)

For the first time in early 1984 , Barnovak began using conceptual plans as educational strategy. Conceptual plan is derived from " pre organizer " is the Assible's meaningful spoken learning theory. It emphasizes on pre-knowledge role of the learner to next meaningful learning. Based on Assibles theory the most important effective factor in learning is pre learning.(Torchim , 1989)

Some of the teachers employ conceptual plans as an educational strategy conceptual plan provides this possibility that past experience and understanding is considered when a new concept is formed in conceptual framework. The conceptual plans are also used in various scientific fields as presentation ways. They are right guides for organizing information concerning to one subject. The conceptual plans show the teacher and students to focus on learning assignments to many key ideas. This causes that teacher presents a general clear image of subjects and relations among them to the students. In these conditions there's a little probability that concepts misundrestooode. (Messrabadi)

Paying attention to the variety of wide scientific subjects,using conceptual plans in teaching experimental sciences including physics,chemistry and biology continuously expanding and the number of people using this powerful tool increases.(Safari)

Thus in many educational centers ,teaching meaning is the transition knowledge of textbooks and teacher mind to learner mind. As a result of this approach we have learners with filled minds of material don't fit with their need and thought.He/she is bored when repeating and hinder them curiosity.(Messrabadi)

With strong theoretical bases like spoken learning theory of Assible , the theories beyond recognition and research witness supporting conceptual plan doesn't have any location on our education system as a teaching -learning strategy. It seems it should be examine in a research framework to use conceptual plan improving learning sciences. In science textbook in grade two in primary school reviewing details by student and teacher is a complex procedure. It seems the solution is using conceptual plan. For this purpose in this research using conceptual plan on learning amount was examind for the sixth grade students in ferdows town, and then use the results in achieving educational purposes.

The value of the topic

If the teacher isn't familiar to bases, principles and educational aims, and the student's need and traits and also teaching techniques and other educational skills, he will not be able to flourish their talents. In contrast to the past approach believed teacher is source of knowledge, in new approaches, including constructivism approach, the emphasis is on analysis ability of solving the problem and knowledge application, so persons should activate their previous knowledge to be able to comprehend and learn one of the ways activate. It is using conceptual plan in teaching. It can be prepared either by the teacher or by the students in groups or on his own. As the conceptual plan is based on awareness of learning it can be the starting point in improving the education process. (Dadgar mohebbi)

Enhancing the meaningful learning is one of the basic education. The education experts know that it is the important factor in enhancing creative thought, critical thought and ability to solve the problems in learners. For this purpose the specialists suggested different educational ways including conceptual plan ways for enhancing meaningful learning. Since the conceptual plans are representative of meaningful relations among concepts, using them causes the teachers and the students make efforts to deepen the teaching and learning process and gain higher recognition and provide all kinds of abstracts, creative critical thoughts (Torchim). But you should consider just like main ways, this way can't solve all educational problems.

Literature and research background

Learning theories analysed the obtainable and unobtainable learning conditions and classified them into two behavioural and cognitive sets. (Shahbani)

The teaching pattern of conceptual plan is based on Ausubel's meaningful learning theory and Ausubel's theory, like other cognitive theories, constructivism and changes made on learning effects, constitute the base of learning. (Seif)

More research evidence there has been that shows conceptual plans superior than the current education ways and learning. For example, Sharif and Rahmani's independent research results show that the conceptual plan way to achieve meaningful high teaching-learning is more effective than giving lecture. (Sarhangi and Rahmani)

The findings of the research by Hatami, et al have this result, there's a meaningful difference between achievement tests of chemistry of the students in Qom province under the syllabus based on conceptual plans to the traditional current teaching. (Hatami).

Francis came to this result that teaching effective amount by using collected facts from conceptual plans in Michigan University, the teacher can control the learner progress by means of conceptual plan, and evaluate his/her class performance and revise the teaching and finally found out that conceptual plans are more effective than using them. (Francis, 2007)

Hartoon et al in beyond analysis of 19 qualitative studies found that conceptual plan has positive effects on person's achievement and their attitude in general, the other section in this research has shown that there's a little difference between the provided effective conceptual plans by the student and teacher. (stated by Mirzaee)

Also there are studies not reported any positive effect of conceptual plans. For example, Misrabadi and Ostewar studied the effectiveness of conceptual plans on students achievement in 3 lessons of biology, psychology and physics and found the conceptual plans had positive effect on biology and

psychology scores but for physics, they weren't effective. Although the results are in favor of using conceptual plans it is totally correct.

Objectives and research theories

Based on the above mentioned cases, this research is going to examine the following research theory. Learning amount in using conceptual plans for teaching the students has a meaningful difference than the students don't. There are three theories as follows.

- There is no meaningful difference between the two groups of test and witness in their pre test scores.
- There is a meaningful difference between the two groups of test and witness in their pre test scores.
- There's a meaningful difference between the two groups of test and witness in their pre test scores dissimilarity.

Research methodology

In this semi official study examined two groups in pre and post tests, to investigate the influence of educational approach in conceptual plans and current educational approach on the achievement of the students in sixth grade male students in science lessons in Ferdows. In this research independent variable is conceptual plan and dependent variable is achievement. The statistical society were sixth grade male students in Ferdows. The available sampling was used. Thirty students were chosen, finally divided in two groups : the witness and test group. (Before initializing the classes, their parents consents taken.) In analysing the information and facts, two statistical descriptive and perceptive ways used for comparing the average scores taken by the two groups of witness and experimental through t-test with independence samples.

For collecting the data teacher made multiple choice test were used. For measuring in pre-post tests students were used that would explained below. It measured the cognitive knowledge of the students in the field of science lesson. The test justification determined through formal justification. The test was given to the qualified teachers and head educational groups. After getting their opinions, necessary changes applied. In present research the test durability with Krambach Alfa is 0/75 and it's a quite high durability. It's approval. Finally final test after improvement including 20 questions designed and it is used for both groups in pre-after tests for the students. The procedure done includes teaching the students in two sessions as long as 45 minutes on conceptual plans and how to make them for experimental group before starting classes, then the experimental group for two months in 8 sessions started. In this way teaching of the materials was done by self made plans. In every teaching session, the students drew conceptual plans for that session for a few cases of detailed aims in appointed groups. Every students obliged to provide a conceptual plan from the whole materials presented for education sessions. In each session a few cases of student's conceptual plans were evaluated. For teaching the witness group also a teaching for two months in 8 sessions with combinative education way in the form of lecture and asking and answering was held. Besides, in the of each sessions the students. Were asked to prepare a summary of the materials mentioned for the next week. In every sessions a number of summaries given were evaluated in group. At last the final sessions was held in common. In this session without any informed

announcement with the same achievement test, a post test was done by all students and the result were analysed. In order to process the information the SPSS software was used. As the test was multiple choice, the correct answers received one point the rest zero point considered. Finally, the final point in both tests computed.

With considering the normal data distribution of parametric tests were used for analysing the acquired scores. The two groups statistical test used for comparison of the scores.

Research Findings

The first theory test

In the first theory posed that there's a meaningful difference between the scores of the two groups in pre test of the test and witness groups. The table 1 a t independence test were used for analysing of this theory.

Table No 1: pretest information of the both groups of control and experiment.

Groups	Control	Experiment
NO.	14	13
Average	13.285	13.692
$\sum x$	1532	2496
$(\sum x)$	34596	31684
T amount	0.0482	
Df	25	

Based on the table 1, t amount computed of scores post scores in both groups of the experiment and witness is 0.0482.

In possible level ($p < 0.06$) %99 and with freedom degree 25 it's less than critical t amount (2.79). If the possible level is %95 ($p < 0.05$) the critical t amount with the same freedom degree equals 2.06.

In this possible level the t amount measured is less than the critical amount, so the zero assumption is approved, and the difference between average scores in both groups in post test of experiment and witness isn't meaningful.

The second theory test

In the first theory posed there's a meaningful difference between post_test scores in both groups of the experiment and witness. for this test of the theory used table 2.The information and t independent test.

Table No.2. The information of the both groups of experiment and control post test.

Groups	control	Experiment
No.	14	13
Average	16.142	17.538
$\sum x$	3680	4026
$(\sum x)$	51.76	51984
t-amount	2.359	
Df	25	

The t amount computed of post test in both group equals 2.359 . At possible level ($p < 0.01$) %99 and with freedom degree 25 is less than the critical t-amount (2.79) with this error amount the mentioned theory rejected.

If the possible level is %95 ($p < 0.05$) ,the critical t-amount with the same freedom degree will equal (2.06) .In this possible level the t amount calculated is more than the critical amount , so this theory is approved.

The third theory test

In third theory posed there's a meaningful difference between pre-post test in both groups.The table No 2 and t-independent test were used for this theory.

Table No.3 : the difference of pre-test from post test.

Groups	Control	Experiment
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No	14	13
Average	-0.857	-3.846
$\sum x$	124	204
$(\sum x)$	1600	2500
T amount	2.775	
Df	25	

T_amount computed of pre test scores difference than post_test in both groups equals 2.775, and at the level of freedom degree 25 is less than t critical amount(2.79).with this error amount this theory is rejected.

If the possible amount is %95 ($p < 0.05$) the t critical amount with the same freedom degree equals 2.06,thus the possible level of t_amount calculated will be more than the critical amount,so the mentioned theory is approved.

Conclusion:

In this research 25 male students in two groups experiment and control participated. The findings show that there's no meaningful difference among the pre test scores in both groups, but there's a meaningful difference between pre_post tests scores. The approval of these three subordinate theories used for approving the main theory, so the conceptual plan can be effective in learning improvement of the experiment group of students. Since it's tried to use all conceptual plan presentation ways in all teaching stages,so it's said the results of this research in the field of research findings have conformity.

In Abbasi's research the use of conceptual plans in teaching chemistry, and also in Ghanbari's research the effect of teaching to conceptual plan way on teaching and learning amount of one lesson were examined.The result showed that the teaching of conceptual plan can enhance the experiment group post test scores in comparison to witness group meaningfully, so the results of present research with present researches have conformity.

In Hattami's research the use of conceptual plan in teaching high school chemistry lesson on investigated. Analysing the results proved a meaningful difference between two in post test scores.

In parallel to this research. Ruth's research (1992) showed that when the group numbers provide conceptual plan in group discussion collectively, meaningful learning enhances among them.The results were the same just like Wine ctein and Mayer ideas that stated summery approach and conceptual can be useful strategies.(Zebarjadian)

In relation to abroad researches can be said the result of the present research has conformity with Horton et al(1993), Fajonyomi,(2002 Nowark,1990,Hsy(2005) Holly,(1979) cook,(1982),Bowe's research (1969).Dadgor Mohebbi.

With considering the conformity in present research findings with abroad and home researches can refer to these results in general.

- Using conceptual plans in learner achievement to different cognitive level is effective , and is a appropriate solution for providing lasting and meaningful learning.
- Using conceptual plans can have abstractive concepts in some lessons , is an effective way.
- The conceptual plans can be used as excellent tools in all planning lessons from teaching design to final evaluation.
- The influence of different ways of conceptual plans is proved , but constructualism has more effect in learning.

This research just like other researches has some limitations as below.

- Teaching and using conceptual plan is time-consuming , and it has some problems in drawing by learners.it causes anxiety and disappointments to them.
- some teachers aren't familiar to conceptual plan,and may refuse using it.

With these difficulties and limitations it is better for teachers to use conceptual plans for their effectiveness.

Practical suggestions:

As the current research findings show the effectiveness of conceptual plans as education strategy , it is suggested :

- The designer of study plans and textbook authors should include conceptual plans in lesson planning and text book contents especially lessons having wide concepts.
- To the all teachers advise to use conceptual plans in all teaching of different stages and for evaluation . which is made by students in team or individual ways,but it should be considered this point to encourage the learners to provide conceptual plans in group work to give more effect to present conceptual plans ways.
- As it is one of the factors that it interests the students in teacher's teaching it is suggested a research and on the title of'' investigation of the relationship of the students to science lesson and conceptual plan presentation in same lesson'' should be done.

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