A Comparative Investigation between Creativeness of Boys and Girls After Designing and Using Inquiry-Based Curriculum in Science Course for the First Grade Students in Sirjan Primary School (2013-2014)

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ABSTRACT

This study is investigated and compared the creativity value between girls and boys in the first grade of primary school after using Research-based curriculum in empirical science lesson of Sirjan city schools in the 2013-14 school year. This research is applied, and it is a semi-experimental study, pre-test, post-test control group. To this end, we used a test of creativity, Torrance, as a pre-test and post-test. Based on the criteria set for the four elements, the program initially was developed, research-based curriculum content for selected courses, and one-month period, compared to the experimental group. Of the 579 students enrolled at the school of Sirjan, were selected, as the sample 100 people. In this study, this used a questionnaire to evaluate the specialists, the curriculum elements, and the Torrance creativity test to measure the amount of creative students and this amount in boys is more than girls. As a means of data collection. The results of the analysis, the pre-test and post-test showed a significant difference seen between the pre-test and post-test, the experimental group. And performances are designed to increase students' creativity. Thus, according to the results, changes in curricula and teaching methods: traditional, popular in school, and use of research-based curriculum, especially in science class, it is suggested, in order to develop innovative graduates, and researcher.

INTRODUCTION

Research literature:

Faced with the increasing growth of scientific findings, in modern times, which is the age of information, which increases the responsibility of the educational system. Because of the volume of data transmission, it is impossible for the students, and what is here is essential, learning is a way of learning to live in the future. Current memory-based approach, the other was not meet the needs of students in today's society, and deal with, milestones, current, demand, educating graduate students creative, innovative, and study, and the researcher, so that, in an age when, referred to as the era of information and knowledge, to provide for themselves, in terms of being updated. In other words, instead of a mere transmission of information considered, learning how to learn. [1] On the other hand, one of the biggest issues in today's society, which has been gripped population, is lacking the necessary skills, social life. Today, the intensity of their feelings, on subjects of social movements, such as collaboration, participation and education.... The next single, memory-based, it can be considered the main cause of this situation. Unfortunately, one of the most important and biggest weaknesses, the education system of the country, takes place in the fact that, rather it is merely a part of his training, and was largely forgotten after his research. To change the traditional approach, experts suggest the military, which is known, as, education, and research-based education. In this approach, it takes a special effort to nurture intellectual
abilities, and increase the capacity of the student’s argument. The proposed system was out of the range of views, from the early 1960s and has been entered into the realm of science education [2]

In other hand, researchers believe girls and boys are similar in normal traits about 18% and their differences are more than the similarities. Understanding these differences and similarities helps to solve many problems. Some of these differences are:

Girls:
They review their information in the mind. Their view angle is more than boys and pay intention to details more. They adopt changes quickly and are successful in the reading lesson.

Boys:
They can focus on one subject in the meantime. They answer short and ask question less. They need less time to solve problem. They have mental independency and are great in mathematical calculations (Bastani Pour, 2005)

Educational systems can provide only a presentation, problem solving strategies, and research skills, context mobiltiy, and progress. To accomplish this goal is to require the institutionalization of research. Therefore, the main task of the educational system, as the focus of community development, and also the creation, research-based approach among students. Core research skills, in educational systems are embedded in, research-based curriculum. Production of research-based curriculum will provide the basis for dynamic development of students, and the educational system [3]

Research-oriented and problem-oriented approaches in the teaching process can develop among students in deep learning rather than surface learning, the characteristics of which are lecture-based approaches, [4]

However, since the research was to a tree, newly planted, in education, we must strive for growth and prosperity, and strengthen further its origin. No doubt that is the most basic element of the research, the researcher human resources, benefit from, capability and skills. In education, there is a vast need for trained manpower researcher. It is clear that, as not enough effort, to overcome this shortcoming, no study cannot be considered as an endogenous activity in education [5]

Also, research shows that elementary education, the research skills, to the children, and the research-oriented, primary education, would be a guarantee for the growth and development of the scientific, economic, social and .... in the communities, because, methods of teaching transmission of data and information, it is not the dominant method of teaching, and the teaching of science to children, would require equipping them with skills of asking questions, gathering information, theories, etc. that are all achievable is, in the shadow of education, research oriented. [6]

Learn the correct methods of learning, formed in childhood, and then, gradually reinforced these skills. Skills such as: listening, thinking, reasoning, making, creative thinking, curiosity, and curiosity, are learning the right habits that must be learned in childhood. After the home environment, which obviously develop these habits, will assume the education system.[7]

Strong et al [8] are of the opinion that it is necessary, updating, and revising content of textbooks, the educational system. In this review, it should be noted that in order to amend and revise the basics, and the scientific program, and the content of textbooks, to the role of the learner in the learning process. To achieve, self-discipline, self-control, and self-governance, the students should be institutionalized, the spirit of this approach, the individual components of the curriculum.

The structure and organization of the curriculum, in its own way, is an observer to, decision-making, in particular, how to apply the elements of the curriculum. Curricula related to learning, and design elements. [9]

Curriculum elements, which are referred to them, the topics include: objectives, content, teaching activities - learning, and evaluation. [1]

Some experts believe that the number of these elements, seven elements, and some 9 elements. [9]

In this study, the researcher is concerned, the four elements: objectives, content, teaching and learning strategies, and evaluation.

Here, the question is that if Research-based curriculum can increase the creativity in the children and is differed among girls and boys.

Research-based curriculum elements:
1. Purpose:
Selection criteria that, are considered for selection, research-based curriculum goals, is thus:
- The purpose of education is discussed, taking into account the characteristics of learners.
- The purpose of the training passes the filter, rationality, participation, and communication.
- The purpose of education, derived from, continuous efforts, research humans in various domains, of human knowledge.
- Implementation of the goals of education is associated with many challenges.
The purpose of education is coordinated with various aspects of human education.

2. Teaching and learning strategies:

Teaching methods appropriate for the current build, this approach should be the method of teaching exploration, whereby students play an active role in the learning process [1].

Regardless of the use, traditional methods cannot be activated, study and research, the students, and the educational system. Rather, it should be used, in accordance with the methods, content and curriculum issues. In general, for shaping, research-based approach, the students, the following methods are appropriate:

2.1 Methods for field trips:

Field trips and experiential activities outside the classroom is an academic work that takes place outside the classroom, laboratory, or library, and is included direct studies, and first hand, about a problem, gather information, through observation, questionnaires, measurement, sampling, and other investigative techniques, to thereby ensure the validity of the assumptions, change detection, and precision, and accuracy condition and position. [10]

2.2 Project approach:

Since, the project is required during the research process, is one of the most-efficient methods, in the classroom, to create models based study. [11]

3.2 Method of Problem Solving:

Student that uses this method in dealing with the problems, in fact, will follow the process of the study. To solve the problem, it is necessary to know the procedure. So, using this method in the classroom, providing the basis for the formation, research-based approach, and the students.

Implementation steps of this method are as follows:


4.2 The probe method:

This model puts students in a position where they are tested, their issues through thought, exploration, and research, thanks to the evidence, or collected by, and personally concludes from them. With such an approach, which, in addition to learning scientific facts, their business methods, and the scientific attitude. In fact, teaching librarians is to provide the opportunity, with curiosity, to encourage students to solve problems, and active learning. [13]

3 Content:

Core activities and learning experiences in the classroom, given the content of the courses. The content of dry and lifeless, not forcing the students to work. Thus, class content, to be provocative, so that students become motivated enough to take action. Therefore, the education system, to guide students towards research-based, you should consider in selecting content, the following points:
1) Content must have relevance and appropriateness of the objectives of the course and the educational system.
2) Content must have relevance and appropriateness of the learning experiences, needs, and interests him.
3) Content must have relevance and appropriateness of the level of the learner, according to findings in psychology.
4) Content must have relevance and appropriateness of the conditions and characteristics of cultural, social and environmental.
5) The content should provide the necessary context for learners to participate in the process of learning and acquiring knowledge, rather than the direct provision of information, and information.
6) The content should provide key concepts and basic, the scientific, technical, rather than peripheral concepts, and sub.
7) The content should provide information accurate and reliable, using the latest information and scientific findings.
8) The curriculum should provide opportunities for activities, learning multiple.
9) The curriculum content shall be commensurate with the time and the hours devoted to the subject, and the subject.
10) In this approach, the content that is appropriate, enhance the shape of your thinking.
11) Among the skills that should be established, endemic foci, educational content, the reasoning, thinking, research, and problem solving. The proponents of this approach, it is not the content that is important, rather, is
to strengthen the skills and spirit of research, which is expected, the educational content. Besides that, it is important in education and traditional education, contents itself, and is emphasized.

4. Ratings:

The following types of evaluation, it is important to realize the approach, the research center:

A) the evaluation of a dynamic approach, and growth, and continuous evaluation: The main character of this type of evaluation is dynamic, and its extent, and the teacher is expected to further measures, Steny tests, to provide a picture overall, the whole personality of the student. The results of this type of assessment and evaluation is used for growth, and promoting student.

B) Evaluation through a list of observations of this type of evaluation, the new methods, and the teacher puts the judgment, the student's knowledge in three areas, skills, attitudes, and knowledge.

Evaluation folders: folders can be included, list of teacher evaluation, reporting student work, teacher notes, reports on field trips, and academic affairs, and student projects[3]

Teacher:

The research-based approach, known as a student, as a researcher, activist, and teacher, as co-researcher.

[14]

When the teacher could perform the research-based approach, in the classroom, that is, sufficient knowledge, with research, and how to do research work. The teachers' positive attitudes toward research and research are one of the contributing factors, in the research-based, educational system. [13]

Research Objectives:

In general, the research objectives can be divided into two categories, the overall objective (goal) and specific objectives:

General objectives, which include:

(1) comparative study of creativity of girls and boys after designing and using Research-based curriculum in the science textbook in first grade of primary school.

(2) Provide recommendations based on the findings of this study, in the particular, development of a science textbook, first-grade-based, research-oriented approach.

Specific goals:

1. Designing inquiry-based curriculum in science class for first grade students.

2. Compare, creative thinking skills, students boys and girls first, have passed their science class, enjoying, research-based curriculum with students who have been trained in this course, the common way.

Research Questions:

1. How is designing and editing, research-based curriculum goals in science class, first-grade?

5. What is the difference, in terms of skills, creative thinking; students who have been trained with, research-based curriculum, in science class, the students boys and girls) are trained with a common curriculum?

Types and research methods:

The method is based on the nature and methods of data collection are in kind of quasi-experimental studies, comparing with the experimental group and the control. After designing and editing, research-based curriculum for science class, first-grade, based on the literature and the literature of the subject, then, in order, to examine its role, the skills, creative thinking of the students concerned were is the method of quasi-experimental research."

Target population:

Include all students, first-grade class, studying in Sirjan city schools in the 2013-14 school year, according to the report, education, city of Sirjan, there were 579 people, were, for example, the number hundred of them, in the two stages, with the methods of cluster sampling and simple random sampling.

Sample size and sampling:

In the study, we first cluster method, selected the desired grade, then for select classes, we used the method of sampling, simple random sampling.

Of 13 schools in the city of Sirjan, was chosen, number 2 grade. Then, randomly, selected 4 classes. In other words, 100 of the students of these schools were selected from both sexes.
Data collection methods, and tools that Validation Questionnaire:

In this study, we used a questionnaire to survey the opinion of experts, to ensure the effectiveness of the components on the approved curriculum elements of axis, (see Appendix 1), and a test of creativity, non-verbal Torrance, (Appendix No. 2), to measure the creativity of the students, as data collection tools.

Torrance tests:

Creativity test used in the study is visual forms, Test of Torrance's thinking. It is recommended to use a set of test images, from kindergarten to post-secondary level.

This test, which involves two operations, which seems to be enough for any, within ten minutes. The first activity was to illustration. Offered a piece of colored paper, which is essential to a person, thinks about it, and complete the picture, which is in mind. In this work, the evaluation of the production, based on innovation, and expand, however, awarded the score, the qualities, like sensitivity, communication, activities, and so, too.

Activity two was to complete the picture, which includes dozens of distorted images, which will be completed in the range of tens of minutes by one. The products of this phase are evaluated for each image, based on a fluid, flexibility, innovation, and expand. The third activity is a simulation, the second activity, this activity is 36 circles. Theoretical point of view, the images are incomplete, and parallel lines, which require the ability to build the package, and complete. While it is a circle, requires the ability to break down, or destroy the whole problem. Products in this activity will be assessed on the basis of flexibility, originality, elaboration, and the fluid, for each completed image[15]

Method of implementation:

Before the scheme was used to test the creativity of Torrance, as a test, and the test was carried out in two groups, experimental and control. For the study, the number four teachers, school grade, trained during the workshop, three days on, how to teach science, research-based practices, then, were developed, research-based content , and for one month, was taught to the experimental group, the new content. Teaching in the control group was, according to the previous procedure, and after completing the course, participants were re-tested Torrance, the experimental and control groups, and then compared the test results of two groups together. It should be noted that, according to new content, was developed teacher's guide for teaching, as were the teachers.

Describe the statistical properties of the variables research:

Deductive analysis of the data and research hypotheses:

3-1 the research hypotheses:

3.1.1- there is significant correlation among pre-test and post-test of creative thought skill in girls after implementing training course.

H0- there is no significant correlation among pre-test and post-test of creative thought skill in girls after implementing training course.

H1- there is no significant correlation among pre-test and post-test of creative thought skill in girls after implementing training course.

Paired Samples Statistics.

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Paired Samples Correlations.

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</table>

Given output above, (0.000) is less than the test level (0.05), so H0 is denied. In other hand, output shows significant difference between pre-test and post-test in girls. Given the averages, when we use training courses, the studied situation of the group is improved about 10.14.

3.1.2- H0- there is no significant correlation among pre-test and post-test of creative thought skill in girls in Govah group after implementing training course.

H1- there is no significant correlation among pre-test and post-test of creative thought skill in girls in Govah group after implementing training course.
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Given output above, (0.407) is greater than the test level (0.05), so H0 is accepted. In other hand, output shows no significant difference between pre-test and post-test in boys.

3.1.3 There is significant correlation among pre-test and post-test of creative thought skill in boys after implementing training course

H0- There is no significant correlation among pre-test and post-test of creative thought skill in boys after implementing training course

H1- There is significant correlation among pre-test and post-test of creative thought skill in boys after implementing training course

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Given output above, (0.000) is less than the test level (0.05), so H0 is denied. In other hand, output shows significant difference between pre-test and post-test in boys. Given the averages, when we use training courses, the studied situation of the group is improved about 11.31.

3.1.3 There is significant correlation among pre-test and post-test of creative thought skill in boys after implementing training course

H0- There is no significant correlation among pre-test and post-test of creative thought skill in boys after implementing training course

H1- There is significant correlation among pre-test and post-test of creative thought skill in boys after implementing training course

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Given output above, \((0.061)\) is greater than the test level \((0.05)\), so \(H_0\) is accepted. In other hand, output shows significant difference between pre-test and post-test in boys.

**Discussion and conclusions:**

To explain and interpret the results, and answer the fifth research question, paid to the research that is done in this regard:

Hosseini Nasab and Sharifi [16] and Soltani and Naeili concluded the average of creativity in the girls is more than boys significantly. Concluded boys are more creative and results of Hassanzadeh and Imanifar [17] Sabri and Alborzi showed no significant correlation among creativity and the gender.

A study was carried out by Ahmadi and Abdolmaleki, titled "Impact of education, science-based approach to exploration, creativity, and achievement motivation, students' research findings showed that the heuristic approach, effective is based, creativity and achievement motivation of students. Also, in Reviews the effectiveness of heuristic approach, based on creative components, the results of research suggest that differences in mean scores, fluid, creative, and extension of the experimental group, which was higher than the control group, but in flexibility component, the average difference was observed between groups.

The findings of this study were to possess, use, research, and education are important. First, it raises the issue of reform, and change, the cognitive abilities of children, and in the meantime, illustrates the importance of educational interventions, childhood, and that provides an opportunity that could be reviewed and analyzed, mechanisms that have a major role in cognitive development and child mental, and increase their creativity.

It should be noted that, according to the results of this study, it is essential that administrators, the education, the research-based approach, in which, as a proactive approach, and effective curriculum design schools, to teach, in this way, help to develop critical thinking skills in children. For the students, in this approach, in atmospheric dynamic, data collected, and paid for, hypothesis, and test their assumptions, and eventually they achieved the discovery of facts. Therefore, the learner will release clause imposed rules, and level, and be guided toward independence in learning, which makes this factor, students have flexibility in learning, and they can easily express beliefs, and expectations.

Students are compared to their performance, provides opportunities that will improve the understanding of their depth. With this approach, students learn the knowledge you need to become active in, learning environment. These activities enable students, to collect, describe, and compare evidence, and extend them, and eventually they have to offer, new way.

Barriers such as lack of coordination between the offices, organizations, research, and planning, the lack of status and importance of the planning process, in sets, the training and development of the country, disregarding the research process, and separate it from the process of curriculum planning, lack of access to schools, experimental, evaluation, curriculum development stages, are the obstacles to achieving serious, program-based, theory-oriented research. Also, lack of resources, regulations, and guidelines appropriate to plan and produce programs based on this approach are the more serious problems.

**Limitations of research:**

1. Uncontrolled, all players’ variables in the study. (Intelligence, passion, motivation, and students).
2. In availability of resources and sufficient literature, in particular, research-based approach.
3. Working poor, the, Department of Education, the city of Sirjan.
4. Inappropriate cooperation by administrators, teachers, parents and students.
5. Scoring, and interpretation difficult, and time-based visual exam Torrance.
6. Insufficient knowledge, teachers in the experimental group, the principles and theories of curriculum planning, in general, and research-oriented approach, specifically.

**Recommend:**

In general, the survey results suggest changes in, traditional teaching methods in schools, and available curriculum, especially science textbooks, in order to develop innovative graduates, and researchers. Changing common curriculum, teacher training are required to optimize the classroom environment, modify the content of the curricula, and evaluation. Accordingly, the following suggestions are offered:

1. According to the results of this study, the impact of this approach on student creativity, it is suggested that the implementation of this approach in practice, seriously, in the schools.
2. The selection and organization of content, and methods of teaching - learning about, science curriculum, is expected opportunities, where your students are producing science.
3. Justification, coaches, teachers, parents, and practitioners, the field of education, in the importance of this approach.
4. According to the great effect, teaching methods used, it is suggested that, given the use of these methods, and applied them in different lessons.
authors, in writing, to have special regard to components, research-based approach, because it will lead to increased creative power of students (boys and girls.)

REFERENCE

[16] Hosseini Nasab, Elham and Sharifi, Hamed, 2009. study the correlation between learning study and creativity with educational promotion in (Girls and Boys) of third grade in Bokan highschool in 2009-2010, education journal, third year, 12.