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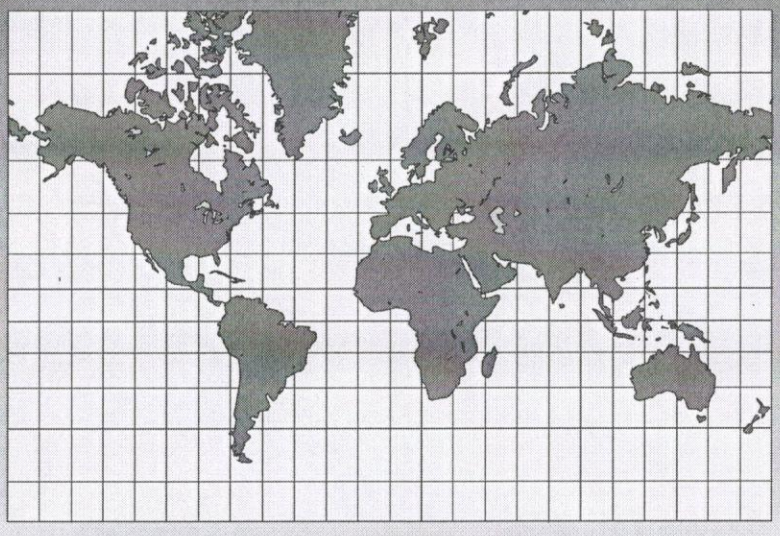

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OBSTACLES OF IMPLEMENTING THE SCIENCE CURRICULA OF THE BASIC STAGE AS PERCEIVED BY THE TEACHERS IN A JORDANIAN TOWN

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Abstract

This study aimed to investigate obstacles that prevent implementation of science curriculum which was developed within the Education Reform for the Knowledge Economy project (ErfKE). To achieve this, a purposeful sample consisted of four teachers of science for the basic stage in the town located in the north of Jordan in the first semester of the academic year 2012-2013 was selected. An open-ended questions questionnaire, and semi-structured interviewed were conducted. Data was analyzed by qualitative analysis method. Results showed five categories of obstacles; some related to the teacher, to the students, to the curriculum of Science, to the difficulty of science materials' supply and others related to the laboratory.

Key words: Obstacles, science teachers, teaching science, Jordanian town.

Introduction & theoretical background

In a century witnessed knowledge growth, information technology invaded all the sectors and helped in producing the knowledge and forming new mental capital that has no borders where knowledge became a form of the economy so the principals of education in any country were responsible to raise generation that can interact with the innovations of the century with reasonability and flexibility and can produce knowledge and use it (Al-Kaleli,2000). In this context, Jordan soak to develop its educational system to keep up with the great development of information and technology. It started implementing the first level of the educational reformation for the Knowledge Economy(ERfKE) that ended in 2009 and the second level of the same project which started in 2010 aimed to develop the whole system of education so as to achieve the objectives of the qualitative development of learning and education according to specific levels and investing the human resources and enabling them as they are considered the cognitive capital that can develop. And one of the major component of this project was designing new curricula and tools of evaluation with high quality (Al-zuidi&Al-Khawalda, 2011). In the project of developing Science curricula, the general frame of Science curricula of the basic stage assured the necessity of developing the students' skills in enquiry and critical thinking taking into account the ethical issues which are related to the environment and the human society. And these curricula have to care of learning resources and methods of teaching in addition to link science with reality and the society's culture and to focus more on developing the manual skills and the skills of making decisions (Ministry of Education, 2005, p9). As a result of this, the science books were composed taking into

consideration the educational philosophy and the attitudes of the project and the modern scientific attitudes of education which are related in particular to the international standards of the science curricula and its content and methods of teaching it. Regarding to the importance of the basic stage as it is considered the basic basis of any educational system because it addressed a period of age where the students acquires skills and the theoretical and practical knowledge. And because teaching Science is a basic knowledge to all students to enable them understand and learn the sciences when the skills and the method are presented in an appropriate time, learning science is considered compulsory and one of the major and basic component in the basic education of any educational system (Kerr, Beggs and Murphy, 2006) to rehabilitate the students interactively in the field of natural sciences and in the cognitive, skillful and emotional fields (Ministry of Education,2005).

Therefore, Ministry of Education in Jordan paid much attention to Science teaching in the basic stage, within the educational reforming project for the knowledge economy, represented by attracting the qualified human resources and the trained ones towards employing the modern strategies in teaching Science in addition to equip the school scientific labs with the latest means and the educational technologies, to computerized the curricula, to design diagnostic,evaluative and developing different aspects of the educational process and to participate in the international studies of Science and Mathematics ((TIMSS((Trends in International Mathematics and Science Study in order to improve the students' level of acquiring the theoretical and practical basics of learning Science and their achievements in these sciences as well (Bani Khalaf,2011).

And these obstacles which facing the sciences teachers in their teaching in general and the basic stage in particular attracted the attention of a number of researchers such as the study of Baara(2002) which its results showed that there were obstacles facing teaching sciences from the sciences' teachers' perspective as having non interested students whose motivation was low. And the study of Al-Qadri(2004) which its results revealed that the most important obstacles facing learning the physical concepts was the students' low level in understanding the basic physical concepts and the belief that physics is a difficult subject. Another study by Sengul, Cetin, & Gur(2008) showed that the teacher's specialization, the length of sciences curricula, the crowded classes, shortage of sciences' materials in addition to the students' evaluation were the most important problems facing the sciences teachers in the elementary stage in Turkey. And the study of Lee, Tan, Goh, Chia and Chin(2005) pointed that there were evidences in the educational literature asserted the existence of obstacles facing the teachers' use of strategies that develop the students' high thinking skills and problem solving in addition to obstacles concerning the teacher himself as personal traits, the ability of teaching, self confidence and the knowledge of the content of the sciences curricula and there were also other obstacles concerning the students' abilities and the support of the school administration, the available time and the shortage of materials and the tools.

This current study is a humble addition to the research effort regarding the obstacles facing teaching sciences according to the modern trends in teaching them.

Problem of the study

The results of Jordan participation in the Program for International Student Assessment(Pisa,2006) showed that the level of Jordan was less than the international one.Therefore, this study tries to investigate these obstacles through answering the following question: What are the obstacles that hinder the implantation of the science curricula of the basic stage in Jordan from the participants' teachers perspective in one of the Jordanian towns?

Significance of the study

The results of this study may provide the principals of teaching sciences with information about the status of teaching sciences in the basic stage and the obstacles facing implementing sciences curricula in the Jordanian schools in general and the rural schools in particular to help them in the planning process to deal with these obstacles. And the results of this study help in filling the gap in the educational literature in general and in the Jordanian education literature in particular concerning this field

Participants of the study

The sample of the study consisted of one female teacher and three male teachers who hold bachelor degree in the scientific specializations and teach sciences to any of the basic eighth,ninth and tenth grades in one of the Jordanian towns located in the north of Jordan in the first semester for the academic year 2012/2013

Tools of the study

The researcher used a questionnaire which consisted of 15 open ended questions and it was presented to three experts to express their opinions of the questionnaire's items. Also, the researcher interviews the teachers from 30-40 minutes.

Results

First: obstacles related to the teacher

The participants teachers did not consider themselves obstacle facing their implementation of the Science curricula of the basic stage in line with the modern attitudes of teaching sciences and achieving the desired goals although their answers of the interviews' questions showed that the teacher himself is considered an obstacle. Three teachers pointed that they are satisfied of being teachers of sciences of the basic stage although they face difficulties in teaching scientific subjects which are away from their specialization in bachelor degree and they do not use modern strategies in teaching sciences because they do not know them and they are unable to apply them. While the other group was represented by the female participant teacher who showed her dissatisfaction of teaching science of the basic stage although she feels satisfied of her performance in teaching it. She is sure of having the ability and the sufficient competency do her job as a teacher although she taught scientific subjects away of her specialization but at the same time she faces difficulty in carrying out scientific experiments which are not related to her specialization and also she does not use the modern strategies in teaching science because she is not convinced of its use and she considers them waste of time. Others reasons prevent the participants teachers from the continuous use of the laboratory are related to the teacher himself as his weakness of experimentation as a method in teaching the science and his lack of ability in designing the surveying experiments or his lack of desire to do so in addition to difficulties, which were highlighted previously, facing them in implementing the scientific experiments which are away of their specialization. One teacher pointed to the obstacle related to the teacher's heavy clerical and administrative work and the big number of the weekly classes.

Second: obstacles related to the students & their parents

The participants teachers considered the students' low scientific level, lack of capability in designing and carrying out investigating experiments and their weak desire to learn the sciences as the greatest obstacles that hinder the teachers' implementation of the sciences curricula of the basic stage in line with the modern attitudes in teaching the sciences. And there are other obstacles regarding the students related to the laboratory as the

students' weak motivation and their lack of carrying out the experiments by themselves. One of these obstacles is the parents' lack of interest in their children and following up their students. Additionally, a participant teacher complained from the parents' intervention in his work which affected the teacher's attendance and weaken his motivation towards work and the laws which the ministry of education applied helped in making this situation even worse. It is noticeable that no one of the participants teachers considered the crowded classed, students' behaviors and their reactions towards doing the homework obstacles in implementing the sciences curricula in the desired way.

Third: *obstacles related to the curricula*

The greatest obstacle facing the participants teachers in implementing the curricula of sciences of the basic stage to achieve its aims is the obstacle that related to the curricula themselves and all the teachers in the study assured the same idea.

It is obvious that the nature of the sciences curricula of the basic 8^{th},9^{th} and 10^{th} grades and their subjects in addition to the activities mentioned in the sciences books are not considered obstacles in the perspective of the teachers (participants) facing achieving the attitudes of the curricula because they did not show any comments regarding this.

Fourth: Obstacles concerning the scientific materials &school laboratory

All the participant teachers showed their satisfaction of the importance of different scientific tools and materials in teaching the sciences to have effective teaching but they all agreed that there were difficulties facing them during providing the necessary materials and tools for teaching and implementing the different scientific activities therefore they were desperate of this situation and even they did not try again but they taught using the traditional methods in teaching as lecturing in addition to the use of some educational means as illustration charts and these difficulties attributed, according the teachers' perspective, to the directorate of education represented by the learning resources' center which did not provide the schools with the necessary materials and tools for teaching the sciences according to the attitudes which the sciences curricula based on and the school's humble budget allocated to the school's labs.

Fifth: obstacles related to the school laboratory

All the participants in the study agreed on the importance of the lab and its role in teaching the science. And they also agreed that the science class cannot be given effectively without carrying out the different scientific experiments but they did not use it continuously because there were obstacles related to the school laboratory itself, for example, there was no equipped room to be used as a laboratory in the school as the lab in many schools consisted of one cupboard or more in a multi-uses.

Discussion of the Results

Obstacles concerning the teachers.It seems that the individuals who graduated from the scientific colleges of the universities in specializations as physics,chemistry and biology are unwilling to work as science teachers in the basic stage even in teaching their specialization in the secondary stage (Sengul, Cetin and Gur, 2008). This unwilling to be teachers of science may due to their weakness of their knowledge of the content of Science in the fields which are not related to their accurate specializations and this requires developing the training programs of the science teachers of the basic stage that focused basically on the content of Science and teaching using the scientific activities and ways of acquiring the educational materials needed to implement

these activities as one of the most important steps that is needed to improve learning and teaching science.

Second: Obstacles concerning the students and their parents represented by the students' low level and their inability to carry out the scientific experiments and their weak desire to learn in addition to their parents' lack of interest of their children and following them up. Most of the Science lessons are mainly carried out by the teachers theoretically or practically with little participation of the students causing the students' achievement in the Sciences and lack of ability in designing and implementing the scientific activities and experiments by themselves and therefore the students' interest in learning sciences will be so weak.

Third: Obstacles related to the sciences curricula represented by the richness of content and the length of the school book in addition to titles as think and search.

The scientific curricula's should apply the international standards of the content of the sciences curricula and its methods of teaching to achieve a balance between the components of the scientific culture which were determined by American Association for the Advancement of Science AAAS through the Benckmarks for Science Literacy 2061. And for considering titles in the science book as "think", "search" and others as obstacles for teaching science, this may due to the teachers' weak attitudes towards using such subjects' titles in their teaching. Obstacles represented by the difficulty of obtaining the scientific materials: some of these are related to the schools which are not supplied with enough materials and tools that are needed to teach the science, some schools are not connected to Internet and other obstacles related to the teacher himself as the specialization and his limited time. And this is an absolute result of the shortage of the allocated budget to the school laboratory, lack of the continuous maintenance of the school's educational technologies in addition to the lack of the teachers' training programs that focus on designing and using the educational means.And obstacles concerning the school lab. There is no lab in the school and if there is one, it is inappropriate for the students' practice of scientific and this may due to crowded classes at school and using the lab as a classroom.

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