
The Eurasia Proceedings of Educational & Social Sciences (EPESS), 2016

Volume 4, Pages 248-250

ICEMST 2016: International Conference on Education in Mathematics, Science & Technology

THE FUNCTION AND IMPORTANCE OF AMGEN PROJECT IN SCIENCE EDUCATION SUPPORTED BY EUROPEAN UNION

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ABSTRACT: EU has often prepared various projects in last years to provide for each student a qualified science education. These projects which are about science education have been prepared by European Schoolnet. Amgen Teach Project is one of these projects. The purpose of this research is to provide information about Amgen Teach Project developed by EU and to specify the importance of process in learning and teaching science. This project has been realized by collaboration with European Schoolnet and Amgen organisation. The main target of this project is to contribute science teacher's professional progress in secondary school and increasing student's interest in science with "*Inquiry-Based Science Education*" approach. Amgen Teach Project is being carried on throughout the ten European countries after having implemented its practices for two years in four European countries. In this context, it has been organised workshops in Brussels to be benefited as possible as for more teachers. In these workshops, it has been worked out on new approaches in science education and it is carried out some events and practices toward the function and importance of technology in science education. It is explained the context of Amgen Teach Project, effective using of "Inquiry Based Science Education" approach and the function and importance of technology in science education to the teachers who come from different European countries. Through this project, teachers who belong to the different education culture can share their knowledges by sharing their experiences. At the end of this research there have been reached some propositions on science education.

Key words: : Amgen teach project, european union, science education.

INTRODUCTION

The purpose of this research, is to give information about the AMGEN project which is developed by European Union and to declare the importance of learning and teaching science. By this project it is intended to support science teachers in secondary schools for their professional progress and to raise students concern on science through "Inquiry Based Science Education-IBSE". This project is being realized by 10 EU countries after having two years of pilot practices in four countries. Workshops are organized in Brussels periodically for as many teachers as possible to join. In these workshops the context of AMGEN project has been presented, the effective use of (IBSE), the function of technology in science education. Through this project teachers from different countries explain and share their experiences in science education. At the end of the researches, it is concluded some proposals on science education.

AMGEN Teach Project

It is managed by European Schoolnet which is a part of Amgen Foundation. European Schoolnet is a NGO, which is supported by ministries of education in 30 European countries, based in Brussel. In this project, in IBSE approach, educations are provided in two different level of expertise. It is organized as face to face educations for the science teachers in secondary schools regarding their background of IBSE trainings, at basic level or high level of science education. In the framework of this project, there have been organized local and international competitions. This project is organized by ANISN.

ANISN

It is an union founded in Italy in 1979 which has 2000 members as science teachers on 26 different subjects. By this union, science education has been organized trainings which includes language and science education

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- Selection and peer-review under responsibility of the Organizing Committee of the conference

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together and it has organised competitions as well. For example, Science on Stage, Darwin Day, DNA Day and Caesar Bonacini Prize are some of the competitions organised by ANISN. Every year teacher trainings in science education have been organized in summer schools. For 14 years science olympics have been organized, international world science olympics (IESO). Also science experiment games have been organized in Italy since 2010 (www.anisn.it). Students can reach these competitions and projects in e-twinning link in ANISN website.

AMGEN TEACH PROJECT

The purpose of AMGEN Teach Project

The purpose of AMGEN project is to contribute to the teachers for their professional progress and to raise students concern on science through IBSE approach. By AMGEN Project it has been intended to reach more teachers as possible by organizing workshops. It continues to offer education opportunities online by webinars. Thus, it contribute to teachers achieving for them high self-efficiency and to raise their professional progress. Researches made on this subject shows that teachers who have self-efficiency can provide informations and datas with its meaningful context and thus they try to practice in a student-based approach.

The relation between self-efficiency and inquiry based science education

The term of self-efficiency is used first by Bandura (Ekici 2005). Bandura define ‘‘self-efficiency’’ term as a qualification which has influences on shaping behaviours and self assesment of a person for himself about achieving necessary activities towards a certain performance level (Ekici 2005 quoted from Bandura, 1997; Kear, 2000; Zimmerman, 1995). It is determined that reliance of teachers about self efficiency is related to their talent of managing class activities, the choices of teaching methods, techniques and performance towards students success (İnaltekin & Akçay 2012 quoted from Gürol and oth., 2010). Many researches show that science teachers have low self-efficiency level on teaching in education environments (İnaltekin & Akçay 2012 quoted from Savran & Çakıroğlu, 2003; Schriver and Czerniak, 1999; Vural & Hamurcu, 2008). To motivate a teacher to teach science (high self-efficiency level) and as a teacher to avoid science education (low self-efficiency level) plays a vital role. Reliance on self-efficiency in science education is closely related to the teachers reliance on science education and their activities in classrooms. Teachers who have high level of reliance on self-efficiency tend to use student-based approaches, to spare more time for science education, to educate through inquiry based education and they are very successful at doing all of these things. (İnaltekin & Akçay 2012 quoted from Harurluoğlu & Kaya, 2009). Teachers who are high-motivated in their classrooms offer their students opportunities to use their mind in a more creative way. Thus, students who can make inquiries without memorising, using their own words instead of certain words in books, make group activities, have experienced their own performance in their classrooms. A student who experiences in their classroom environment and who makes inquiry in a subject which he wonders and then who makes research on those subjects reaches results about them and makes plans to present these results in a best way, is a student that reached high level of self-efficiency and has a successful experience. In IBSE approach the main target group is students, but for teachers, who generate this system, self-efficiency is important in this process. In this reason AMGEN project has been reached both by teachers and students.

The main purpose of inquiry based science education

The main purpose of inquiry based education, is to improve students mental otomy . In a traditional class environment, students see their teachers as the experts who give right answers. In contrast, in an inquiry based education environment students learn to create their own approach and take on responsibilities to create their own knowledge base. In this process the role of teacher as an expert is to make students learning easier by taking the lead. (İnaltekin & Akçay 2012 quoted from Collins, 1998). This tendency towards this process in science education is seen after 2000, especially by reforms in teacher training programmes, it is based on training teachers who can inquire and teach inquiring (İnaltekin & Akçay 2012 quoted from NRC, 2000). Now, *inquiry based education* is seen as the most necessary part of devoloping programs in many countries. Various researches show that inquiry approach in education includes giving opportunities to the students to find questions in which they can create informations in their learning process, regulate the research process expose the result and share the results obtained with others (İnaltekin & Akçay 2012 quoted from Lin Turan, 2005). Researches on science education show that a well planned education programme is based on inquiry approach on learning of students in a structural learning context (İnaltekin & Akçay 2012). While *AMGEN Teach Project* provides teachers to adapt to ‘‘IBSE’’, it provides students to reach informations on their own instead of memorising certain informations.

In the workshops organized in AMGEN Teach Project framework

These education methods were presented in some events through the IBSE approach. If we explain one of the experiments briefly; a torch, a carton box, a scissor, an aluminium folio were used in this experiment. We placed aluminium folio at the bottom of the carton box, the sides of box were left as carton. We put carton box closer to wall and we turned on torch. When we set light at the bottom of carton box and reflect it from there, there was no light on the wall. Whereas when we turned the sides of the box and put them closer to the wall and set light from this point, the light was seen on the wall.

The reasons of this experiment were discussed among the teachers. There was no light on the wall. Because aluminium folio is not permeable. The purpose of this experiment is to identify whether the materials are permeable or not.

Evaluation of an experiment

Starting the subject with an experiment in order to find whether the materials are permeable or not, before studying that subject with certain informations in the books helped us to examine the subject quickly and it helped us to do the same experiment by a metal, wood and water. Thus we could classify the materials permeable or non permeable. When we teach our students just by taking notes as “these are the materials permeable and these ones are non permeable” and without doing any experiments they will easily forget.

Workshops

We made some example of science experiments and also we presented multifunctional smart boards which will be used in science education in the future. These experiments which were made in front of smart boards were demonstrated on the huge billboards. In the meantime students could both watch experiments on their tablets and they could find the results of experiments by using different test materials through small animations. Nowadays, it is clear that it is necessary to use smart boards efficiently for us, as teachers, since children and youths use technology very well.

CONCLUSION

In the workshops organized in the framework of AMGEN Teach Project, which many teachers from all around the world attended and discussed, it appeared that the consistent knowledge is affected by the environment in which students can express themselves. A student who makes research on a subject in lab environments and find its results, he reaches in a high level of self-efficiency in his lessons and he has a successful experience. Interest of a student, who learns new concepts concerning in an eucaryotic cell by animations and plays, becomes more successful in their lessons. One of the influential factors for the individuals to realize an activity is their self-efficiency levels about their capabilities of doing it. In science lessons, it is an expected result that students who have high level of self-efficiency will be successful. It is necessary to offer secure environment by teachers for students in order to express themselves, to understand science lessons well, to use the science concepts and processes and to get self confidence by providing them lab opportunities in which they can have successful experiences.

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