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Changing primary education programmes' reflection in teacher training: thinking, interrogant, searcher teacher candidates

Hatice Mertoglu[a]*, Esra Macaroglu Akgul[b]

Marmara University Atatürk Education Faculty Science Teaching
Yeditepe University Education Faculty Mathmatics Teaching Department

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Abstract

In recent years, the developments in science and technology required raising humour generation. Being able to accomodate.Being able to accomodate innovations, understanding science and technology and commenting on related subjetcs reqired to be science literate with a more official language. Training science literates is a matter which should be discussed firstly in teacher training establishments. Only concious teachers who are trained by them can raise generations with required features. One of the neccessities of being a science literate is undertsanding and implementing science as not only a product but also a process. For this reason, laboratory courses which are in teacher training programmes have a special importance for training searcher, interrogant, and producing science literates. Science lab. application courses which has been implementing in teacher training undergraduate programme since 1997, bring teacher candidates the features such as basic knowledge and skills about lab, preparing lab projects, and evaluating the results. Necessary behaviours that a teacher candidate has to gain are being knowledge of lab method and experiments as well as being skillful on experiments. All of these are necessary for understanding scientific process. If we think lab studies as teaching method, teacher candidates should have knowledge and skills about this method during the process of pre-service education. The studies which are about how the teacher candidates graduted from Education Faculties, reflect their knowledge in the classroom shows us that, teacher candidates are not be able to apply their knowledge in practise.

In parallel to the changes in Primary Education programmes, teacher trainign programmes are also innovated. Also, innovated teacher training programmes' lab studies which are in related fields, making new innovations become unavoidable. Constructivist approach's reflections in science education revealed that; it is necessary to organize lab studies empirical to researches so that students can reach new knowledge considering their own knowledge and the use of knowledge which is restructured in their minds. In science education teacher should arise from teaching and disseminating but she/he should become a guide for carrying out the learning activities. Projects are the indispensible studies of almost every science fileds. Science lesson is one of the most appropriate disciplineray because of its' rich content, actuality of the subjects. In lab, about experimet-project plan, the results of experimets or projects are less important than following the process. For this reason, students should know and plan in advance for which purposes or subjects they will carry out a study, every step should be discussed and accoring to circumstances changes should be done within the scope of plan. By this way, it is provided that; every gruop carry out a different experiment or projects and disccuss with their friends, also they produce new ideas and scientific studies.

E-mail address: haticemertoglu@hotmail.com.

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In this study; it is carried out that; organizing project- based experiments within the scope of "Science Lab. Applications 2" course, as being an application of constructivist approach, and these organizations are evaluated with nontraditional complementary techniques. Students' views relating implementing and evaluating are also took place in this study. 66 teacher candidates took place in this study who are in Primary Education Math's Teaching department 3rd year in a teacher training institution in Istanbul. Students are required to be grouped, by choosing from project titles which are about biology and appropriate for primary science lab programmes, and they are required organizing and implementing project experiments. Before application, necessary explanations were given by hanging out work programmes to groups about project subjects, preparing project experiment format, and self evaluation, peer evaluation, group evaluation forms, and relating how the studies will be evaluated. Students are required to prepare project experiments and present them after 4 weeks by considering these criteria. After that, students prepared their project experiment in required format and present it in lab lesson. Research participants' group evaluation is evaluated by researcher and they are asked for evaluating themselves and each others by using complementary assessment and evaluation techniques. Research findings were evaluated by using document analysis which is one of the qualitative data analyses. This study, provide students not only raising awareness about their own learning but also develop their point of view about the methods of assessment and evaluation and project-based learning.

In this study it is revealed that students have never been done project study and they do not know anything about project studies. Teacher candidates found this study positive because it tells about carrying out projects and scientific process, also it brings innovation to group studies and self evaluation, and it provides scientific concepts and motivates students for learning. Teacher candidates point out that, the study is different than other lab techniques because of organizing project experiments, using of complimentary assessment and evaluation Techniques, student centered and providing situated learning. During the study, it can be said that, complimentary assessment and evaluation techniques have a positive effect on increasing the motivations and group works. Students indicate that they evaluate both themselves and their peers by complimentary evaluations. In spite of this, they said that they had some difficulties during the implementations process. Students in this study implied that there is only one negative aspect of this study which is equipment and time inadequacy and could not be able to meet with group members. While students were carrying out experiments the equipments were inadequate and they had to provide their own equipments on their own. Also, in presentation process lesson duration was not enough.

According to the studies in our country, experiments in lab lessons are made by teachers using demonstration method and students are passivized. It is pointed out that, because the students activity which is the core of implicational studies such as Lab cannot be implied, intended learning aims cannot be reached. For this reason, carrying out students' centered studies has become important. It is observed that, the study which is about biology lab cooperative learning method increasing students' success and motivating them towards lessons. As it can be seen, in training; seeing, discussing, researching, investigating individuals, it is necessary to use other methods in labs. According to constructivist approach, training students by using these methods are important. For this reason, project studies should be done more because of students gaining's of scientific skills. It is suggested that; in labs teachers should use different teaching methods that provides students to think, discuss interrogate, and become more active.

Keywords: Teacher training; teaching with projects and experiments; constructivist approach; complimentary assessments and evaluation techniques.

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