Evaluation of the Cell Biology (Cytology) Laboratory Course According to the Students’ Views

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SYNOPSIS

INTRODUCTION

In continuous interrelation with the science world, universities are places in which scientific thoughts are discussed at a theoretical level and new knowledge and methods are developed through experimental studies and research. The universities located in the center of research and development, they should prove to be the institutions that perceive scientific and technological advances in the world in the quickest way possible. Being able to update research and teaching on the basis of these advances is the most tangible proof of perceiving scientific and technological advances in a proper way. In 21th century, taking place in the changing world stage of college students, adapting themselves to change experienced in and being creative in the existed opportunities come to prominence increasingly (Peat et al., 2005).

Learning the cell, the smallest structural and functional unite of all biological systems, through laboratory practices and experimental methods means comprehending the fundamental principles of biology. In other words, once one has mastered the cell, it will have learned the main principles of the other subjects included in biology. It is one of the necessities of modern age to have a meaningful, sensible, economical and rational learning methodology. In order to ensure meaningful and permanent learning, people are expected to be involved in the learning process in an active manner. The laboratory is the place of active learning in basic sciences. Laboratory practices give students opportunity to learn by understanding (Gardiner & Farragher, 1999). It is essential that the subjects included in the course “Cytology” should be covered in parallel with laboratory practices, as is the case for each branch of biology. Laboratory studies enable students to get involved in conscious and permanent learning in lessons.
PURPOSE OF THE STUDY

The purpose of this study is to identify the problems that are experienced and the target behaviors that students are expected to develop during the laboratory part of the course “cytology”. Great care is taken to carry out an objective evaluation with a consideration into students’ opinions and recommendations. The study is also a “self-evaluation” or “self-criticism” with a case study on the Gazi Faculty of Education, Gazi University. The sub-problems are the skills students taking a laboratory course in “cytology” develop, their opinions as to the way the course is taught, their opinions about the efficiency of current laboratory facilities, their opinions concerning the contributions of the course to their teaching skills, and their opinions concerning the recommendations made to enable the course to be taught in a more efficient way.

METHODOLOGY

The study was based on the survey model in order to analyze the current situation of cytology laboratories. The population of the study was comprised of the students of Biology Teaching, Gazi Faculty of Education, Gazi University. The sample, on the other hand, consisted of a total of 105 second, third, fourth, and fifth grade students of biology teaching. First grade students were not included in the study, for students took the laboratory part of the course “cytology” in their second year.

The researchers designed a questionnaire as the data collection instrument for the study. The questions were composed with a consideration into the literature. Their validity was ensured through learned opinions. The validity coefficient of questionnaire had a Cronbach’s Alpha of .89 and consisted of 35 questions presented using a three-point rating (Likert). The students were also presented with three open-ended questions in order to reveal their opinions about the course in a detailed way. The data were analyzed by frequency (f) and percentage (%). The data obtained from the open-ended questions were analyzed descriptively and presented either with direct quotations from the students or in tables.

FINDINGS

The present study analyzed some of the educational objectives that the students were expected to accomplish during the laboratory course. It was concluded from the statements of the students that laboratories could improve the ability to comprehend theoretical things in a better way, to observe complicated and unclear concepts in a direct way and to use laboratory materials in a proper and safe way. It was observed that the students could not achieve the other specified objectives.

As for the way the course is taught, the students believed that drawings were helpful in understanding things better. Furthermore, most of the students thought that the course was necessary and its current contents were useful.

The majority of the students noted that laboratory facilities were currently not utilized in a satisfactory way. Furthermore, they thought that laboratories had inadequate physical facilities and equipment.

As for the contributions of the course to their teaching skill, the prospective students regarded themselves rather incompetent in conducting laboratory experiments.

Students mostly agreed about the recommendations for teaching the laboratory part of the course “cytology” in a more efficient manner. In addition, they thought that there should be more experimental practices, that laboratories should be in accordance with current science and technology, that practices should be in parallel with those at national and foreign universities, that observations should be made directly through microscopes, that experiments...
and practices should be associated with daily life, and that more importance should be attached to information and communication technologies.

CONCLUSION and DISCUSSION

The study concluded that the students could not develop many of the objectives for the course that the course could not make a sufficient contribution to their teaching skills, that laboratories had inadequate equipment, that students mostly agreed on the recommendations for teaching the course in a more efficient manner, and that they made additional recommendations. These conclusions indicated that the laboratory gains which Howard & Miskowski (2005) and Akçay (1990) pointed out, for this course prospective teachers didn't acquire. Our study supported the result that Köseoğlu & Soran (2004) indicated in their study. The result is about the teachers' seeing themselves inadequate regarding the laboratory. In generally, considering the recommendations of the students, the students believe in the requirement of this lesson and for this reason, they think that the laboratory opportunities need to be improved.

REFERENCES


