

## BOOK REVIEW

<b>Practice Teaching Methods in Science Education (Fen Eğitiminde Özel Öğretim Yöntemleri I-II)</b>		
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### GENERAL INTRODUCTION

This book has five chapters which consist of learning theories in science education, teaching principles in science education, common teaching methods in science teaching, alternative learning and teaching approaches and acquiring scientific process skills in science education. The book contains 246 pages and published in black and white.

### PURPOSE

The book aims to present to the readers the properties of teaching approaches in science teaching, how these approaches can be used in teaching activities, the theoretical knowledge which leads to necessary implementation of science and technology courses and contains sample activities about these approaches.

## SECTION INTRODUCTION

The order of the presentation of each chapter is given below.

In the first chapter named Learning Theories in Science Education, the description of general concepts in education such as education, teaching and learning are given. These concepts concern not only educational sciences but also form the fundamentals of science education as well. It is obvious that the effective use of these concepts in teaching and learning process contribute to the development of science education. In this chapter, some prominent theorists' theories such as The Piaget, Bruner, Gagne, Ausubel and Multiple Intelligence and Constructivist Learning Theories are presented respectively. In addition, two sample activities for each learning theories are given relating to the concepts included in the curriculum of the science and technology programs.

In the second chapter named Teaching Principles in Science Education, the description of teaching is presented to acquire the planned knowledge, skills and attitudes to the students. In this respect, the answers to the questions "Who learns?", "Who teaches?", "What is taught?", "How is it taught?" and "Where is it taught?" are examined which are five basic elements of teaching. Furthermore, the principles of teaching are emphasized for science teachers that these principles are should be taken during the teaching activities. Also, the basic teaching principles are presented such as learning through living, updated learning and learning from concrete to abstract. At the end of the chapter, "Living Cone" model based on teaching principles presented by E. Dale is given how to arrange the relation between living and constructing concepts.

In the third chapter named Common Teaching Methods in Science Teaching, the method concept is explained and the factors which are effect to determine teaching methods are given. Detailed explanations about narration, question-answer, laboratory, demonstration and visit-observation-examination teaching methods are given and the limitations', benefits' and principals of these methods are explained. Students participating in the teaching process supplied by using question-answer method and brief explanation about teaching and evaluation questions are presented. Different discussion techniques such as brain-storming, discussion, whispering groups, contra-panel and forum are explained in this chapter. According to the laboratory method, experiments are examined relating to the open-ended, closed ended and hypothesis tests techniques. The place and steps of problem solving and project methods in teaching activities are explained. In dramatization method, emphasizing the importance of role playing in formal education the variations of drama types in teaching process are considered.

In the fourth chapter named Alternative Learning and Teaching Approaches, learning approaches are emphasized believed to acquire skills to the students such as multiple discipline and inter-discipline, supporting the real life with education and constructing the scientific literacy. Problem based learning (PBL) approach is focuses on learning process rather than teaching is presented. The properties of this approach consist of the benefits providing to the students and the activities that the teachers could carry out in this process. Project-based learning (PbL) approach accepted as an alternative learning approach is given in a second subtitle with its theoretical and practical knowledge. PBL has five important components that these components are being-in-centre, activating questions, creative researches, autonomy and reality. After given these components, necessary activities are indicated to both teachers and students in the PBL process. In the last subtitle of this chapter, three different laboratory approaches called deduction; induction and research based are explained in detail. Many sample activities belonging to each approach are presented relating to the concepts and units included in the curriculum of science and technology program.

In the final chapter named Acquiring Scientific Process Skills in Science Education, scientific process or mental skills are explained mentioning its relation with the learning. Scientific process skills are explained in detail in three groups as basic skills, reasonal skills and experimental skills. Necessary explanations to acquire skills to the students are given on observing, testing, classifying, recording the data and number-space relations. Each of reasonal process skills are examined with examples determined as predicting, recording the variations, interpreting data and reaching results considering that reason processes are the prerequisite of experimental processes. Relating information is given about the skills such as building and testing hypothesis, changing and checking the variables, making experiment, using data, forming a model and making a decision. Three activities about these skills are presented in the student activity part of the final section of the chapter.

## INNOVATIONS FOR THE FIELD

As known, Special Teaching Methods I and II are the mass courses in the programs of education faculties relating their reconstruction by the Higher Education Council (HEC) in 1998 (Çepni, Karamustafaoğlu & Karamustafaoğlu, 2004). The description of both courses which are in science education is determined by the HEC. The course description is given as teaching methods of the subject, learning theories and approaches, teaching-learning processes, practices of teaching methods on subject field, examination of the textbook and its relation with special teaching method and strategies, micro teaching practices, evaluation of teaching (HEC, 1998). In this respect, the textbook is published similar to the content of the course explanations. The readers are modified as each chapter contains contents and target behaviours at the beginning and it provides discussion questions which yields readers creative and criticizing thinking. How to use learning theories, teaching methods and other information are given in the textbook with concrete. The positive side of the textbook is that these examples appeal the prospective students as they are selected relating to the units and concepts of the 6th, 7th and 8th grades of science and technology course.

## RESULT AND SUGGESTIONS

If it is thought that the importance of the field education recently understood, it is clear that this textbook can be considered as a reference book which provides theoretical information for science teaching and performs opportunities to the various new things. The textbook addresses to the target groups as it provides a number of necessary figures and pictures, fluency in narration, the relation of each chapter with the other and selection of subject parallel to the course description. The following suggestions should be considered to increase effect of the book respectively. In the introduction part of the book, the questions should be answered such as “What are the basic aims of science teaching?”, “What does scientific literacy mean?” and “How are concepts taught?” Table 1 on the page 7 and the statement “seeing decrease in egocentric” on page 8 in the first chapter should be changed into “seeing decrease in egocentric according to affective-performative stage”. Two typesetting mistakes are seen in the textbook. The first one is on page 40 in the first chapter as the equivalent resistance equation next to the connection in parallel figure is written wrong. The correct equation is in the following paragraph. The second one is the sentence “Concept maps about carbon cycle and nitrogen cycle are given below” which is on page 40 should be change into “A concept map visually presenting the electric concept is given below”.

## **REFERENCES**

Çepni, S., Karamustafaođlu, O. & Karamustafaođlu, S. (2004). An evaluation on implemented teacher profession courses after reconstructing of education faculties, *Journal of DEU Education*, 15, 22-29.

HEC, (1998). Education faculty teacher training programs, March, Ankara.