Development of Attitude Scale Towards Simple Electric Circuits and Assessment of Students’ Attitudes

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SYNOPSIS

INTRODUCTION

Science and technology have significant impact in human life. As a basic science, physics has important contributions to the development of science and technology. To follow and understand everyday life and technological developments, physics should be learned well by all students. As Hewitt (1998) states, physics should be educational mainstream for all students. There exist too many factors affecting students’ academic achievements and one of them is students’ attitudes (Ekici, 2002; Kan & Akbaş, 2006; Nuhoğlu, 2008).

PURPOSE OF THE STUDY

Like in many other countries, physics education in Turkey is highly important. Evaluating the attitudes of students’ toward physics is important for teachers and curriculum developers. The aims of this study are to develop a reliable and valid attitude scale in order to assess ninth grade private college students’ attitudes towards simple electric circuits, and investigate whether the students’ attitudes differ according to their gender.

METHODOLOGY

The research was conducted as a survey study. An attitude scale consisting of 45 items was prepared by searching literature and administering expert opinion. The scale was administered to 159 ninth grade private college students as a pilot study. Based on pilot study, the reliability and validity analyses were conducted; some questions were revised and some questions were completely discarded from the scale. According to the results of the pilot study, an Attitude Scale consisting of 24 items was obtained. The scale consists of five factors; enjoyment, self-efficacy, importance of physics, achievement-motivation and interest.

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related behavior. After three weeks, the final form of the scale was administered to 73 ninth grade students from the same college. By using SPSS, the collected data were analyzed descriptively, and the attitudes of students were evaluated regarding the factors in the scale. The effect of students’ gender on students’ attitudes was investigated by conducting independent sample t-test. Finally the results were evaluated.

**FINDINGS**

The items in the scale designed to be rated on a 5-point likert type response format (absolutely disagree, disagree, neutral, agree, absolutely agree). The factor analyses denoted that, five factors in the scale explained 70.75 % of the total variances in the scale. The Cronbach-Alpha internal integrity coefficient of the final version of the scale was found to be 0.93. The values for the Kaiser–Meyer–Olkin and Barlett Test of Sphericity were found to be 0.89 and 2264.6, respectively. By regarding the frequency, percentage, and mean values of the items, students’ attitudes were evaluated. The results of the analyses denoted that the developed scale is valid and reliable, and students were mostly uncertain about the items. The result of the t-test also indicated that the effect of students’ gender on students’ attitudes was insignificant at the 0.05 significance level (t (71) = 1.21, p>0.05).

**DISCUSSION and CONCLUSION**

The current study aimed to develop a reliable and valid attitude scale to evaluate ninth grade private college students’ attitudes toward simple electricity, and investigate whether the students’ attitudes differ according to their gender. Since the scale is content based, it can be used to measure college students’ attitudes toward simple electric circuits or other physics topics, and also it can be used to investigate the effect of any instructional methods on students’ attitudes toward other physics topics in other private high schools.

**SUGGESTIONS**

The researcher who would like to investigate ninth grade private college students’ attitudes towards any topics in physics or investigate the effectiveness of any instructional method on students’ attitudes can use this scale. The conduction of a similar study by using this scale over different and large study groups can contribute to the validity and reliability of the scale. One step ahead of this study is that it would be investigated why students’ are mostly uncertain about the items in the scale. Within the scope of another research, the attitudes of students studying in government and private schools would be investigated and compared by using the current attitude scale.

**REFERENCES**


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