

Öğretmen Adaylarının Asit ve Bazlar Konusunda Çalışma Yaprakları Geliştirebilme Yeterlikleri

Prospective Teachers' Ability of Developing Worksheets on Acids and Bases

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Extended Summary

Purpose

Worksheets, which allows the construction of knowledge in the student's mind, shows the ways to do step by step, are documents such as traffic signs. The students will have a chance to acquire experience to create their own knowledge by the worksheets designed to constructivist learning theory. Worksheets can be designed and used for different purposes. But for what purpose they are used, the sections of the well-designed worksheets must be well organized. Furthermore, with worksheets, a variety of scientific process skills should be enhanced such as drawing the mechanism of the experiments which the students will perform, recording data and drawing the necessary graphics Besides, through the activities and experiments related to the concept which is focused on the worksheets, students will have the opportunity to construct the various concepts in their minds.

A worksheet that is developed according to the constructivist learning theory should have three parts such as draw attention/motivation, activity/experiment and evaluation. In the draw attention/motivation part, cartoon, picture, interesting question or stories can be used. The main purpose in this part is to make the students become more eager to read the rest part of the worksheets. In the activity/experiment part, students must work with both physical and mental sense and must endeavor to create their own knowledge. By the way, they should perform an activity/experiment, record their observation, draw graphics if necessary. In the evaluation part, two types of questions are usually used. These questions are to test the students if they learn the subject about the activity/experiment part and to inquire the students' understanding about the relationship between everyday life and the subject. Thus, both the learning of the students will be transferred to the everyday life as

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well. Between the parts, instructions can be used. The purpose of this study was to identify the prospective teachers' ability of developing worksheets on acids and bases topic.

Method

Case study method was used in the study. To collect data, 39 prospective chemistry teachers studying at pedagogical training program in a faculty of education in a university in the Eastern Black Sea Region were asked to prepare a worksheet about acids and bases. And the sample group prepared the worksheets and they were evaluated by the help of a rubric which was developed by the researchers.

However, this idea do not reveal a very objective and accurate results, a different scorer was asked to evaluate the results to ensure the reliability between the two scorer's results. After that, Cohen's Kappa (Cohen's kappa coefficient) values which show the harmony between the two scorers in the results of the study were calculated as 0.82 with SPSS 16.0 software package. This meant an almost perfect harmony between the scorers.

Results

In the analysis of worksheets, 11 worksheets were found sufficient in terms of attention/motivation, 12 worksheets were found partially adequate, and 16 were found as insufficient. In addition, 26 worksheets were given sufficient instructions about the parts of the worksheets, 8 of them were given partially adequate and 5 of them were found as insufficient.

In the activity/experiment part, a few of worksheets were given content knowledge which was focused on the worksheet ($f=2$). 35 of the worksheets were not given any content knowledge and only 2 of them were given a little knowledge and they were counted in partially adequate category. On the other hand, majority of worksheets were supported with picture, table, graphic and visual items. One of the most basic elements of the activity/experiment part to contain the appropriate activity/experiment 11 worksheets were found adequate, 10 worksheets were found partially sufficient and 18 worksheets were found insufficient.

In the last part of the worksheets, 17 worksheets were found adequate in containing different types of questions for evaluation, 11 of them were partially sufficient and 11 of them were found insufficient. In 18 of worksheets, there were appropriate questions according to the students' levels, in 15 of them there were partially sufficient and in 6 of them there were insufficient questions according to the students' levels.

Conclusion

As a result of the study, it was revealed that prospective teachers could not have reached a sufficient level in the development of the worksheets about acids and bases because of the worksheets' not including some necessary parts. The study was

finished with the suggestions of prospective teachers to prepare worksheets on other topics to use in learning environments.

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