Science and Technology Teacher Candidates’ Problem Solving Skills

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SYNOPSIS

INTRODUCTION

Increasing complexity of and rapidly changing environment in our society, educating individuals who have a balanced personality depends on first to recognize their problems and the support provided for them. Problem solving is a process that requires a number of efforts to achieve a certain goal to eliminate encountered difficulties. The individuals who have gained problem solving skills can overcome all kinds of problems faced by the individual whether they are simple or complex. In constructing new syllabus, the development of problem solving skills is aimed for a more rational thinking and decision-making processes instead of classic course. The experiences of students which they have learned as trying, experiencing, seeing, feeling, transferring these experiences to their lives make the time period of solution of many problems faced by students in other periods in their lives shorter and more enjoyable.

PURPOSE OF THE STUDY

This study was aimed at determining of science and technology teacher candidates’ problem solving skills, and examining if their problem solving skills change in total and various sub-dimensions, or not.

METHODOLOGY

In this study designed with respect to progressive research model, the sample was composed by 327 students within different grade levels in Science Education department in Education Faculty at the Amasya University in the 2009-2010 academic year, spring term. The form prepared for collecting data was composed of two sections in this study. In the first section, the teacher candidates’ grade level, gender, education type, age, graduation of high
school type, the reason of the choosing of his/her department, education level of parents, residential living unit, leisure activities were included. In the second section, the Problem Solving Inventory developed by Heppner and Petersen (1982), and adapted to Turkish by Şahin, Şahin and Heppner (1993) was used. The data collected in the research was analyzed by using SPSS 15.0 program. In the analysis of the data, means, standard deviation, independent group t test for two group comparisons and one-way analysis of variance for comparisons of more than two groups (ANOVA) were used.

FINDINGS

It was found that there was a meaningful difference (t325=2.953; p<0.05) on impatient approach, while there was no significant difference (p>0.05) on totally problem solving skills between male and female teacher candidates. It was determined that male teacher candidates were found to be impatient and avoidant when they face complex and hard problems comparing with female teacher candidates. According to education type, it was determined that there was no meaningful difference in total (p>0.05) for teacher candidates’ problem solving skills, but there was a meaningful difference (t325= 2.001; p<0.05) between those who attend to day time education and those who attend to evening sessions in evaluative approach in favor of those who attend to day time education. According to grade level, teacher candidates’ problem solving skills exhibited a meaningful difference (F3-323=17.336; p<0.05) in total and sub-dimensions. The teacher candidates who are attending to first and fourth grade have higher sense in problem solving skills for total and sub-dimensions. A meaningful difference (F6-319= 2.190; p<0.05) was determined for teacher candidates’ problem solving skills according to the purpose of the choosing his/her department. According to graduation of high school type (F2-324= 0.161; p>0.05), education level of mother (F7-319=1.018; p>0.05), education level of father (F6-318=1.938; p>0.05), and residential living unit, there was no meaningful differences in their problem solving skills. When the teacher candidates’ problem solving skills were investigated in leisure activities, the students who play chess were found in low scores. The students who choose the sporting activities, internet, reading, watching tv, puzzle-solving, cultural activities and mind games have approximately same scores. No meaningful differences (F10-316= 0.990; p>0.05) were found for teacher candidates’ problem solving skills in total and sub-dimensions according to number of leisure activities.

DISCUSSION and CONCLUSION

The research results associated with the effect of gender, grade level, residential living unit, education level of parents on the teacher candidates’ problem solving skill sense are in accordance with the literature. There have not been any kinds of study associated with education type and problem solving skill. Findings about relationship between the reason for choosing his/her department and problem solving are not compatible with literature (D’Zurilla, Maydeu-Olivares, & Kant 1998; Düzakin, 2004; Ferah, 2000; Serin & Derin 2008).

The female teacher candidates choosing the science and technology department have higher problem solving skills in first and fourth grade level comparing with the other grade levels because they are more interested in teaching job and children than male teacher candidates. No meaningful difference was found in problem solving skills with respect to education type, graduation of high school type and education level of parents.
SUGGESTIONS

The teacher candidates need to be individuals who are able to exhibit abilities to solve problems that they can encounter due to their job. The arrangements can be done in education programs to inform the students about the problem solving skills and various applications. It is needed to find solutions with the student groups who have low problem solving skills to understand why the students perceive themselves as incapable in terms of problem solving skills. New approaches and applications which develop students’ problem solving skills are needed starting from the beginning of the first grade level in initial teacher education programs.

REFERENCES