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The effect of Gardner theory application on mathematical/logical intelligence and student's mathematical functioning relationship

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Abstract

The present study aims to investigate the effect of mathematical teaching based on the Gardner's multiple intelligences theory on the relationship between mathematical/logical intelligence and students mathematical functioning in general and ,in particular, in the level of concept knowing, concept application and reasoning from the cognitive perspective. This research was carried on in terms of pilot models, accompanying with pre-test and post-test. The statistical sampling includes 40 first grade male students in one public high school in Tehran and the sampling was done through all counted in one educational year (2010-2011). The data was collected through multiple intelligences questionnaire, and TIMSS questions on test of mathematics (2007) and its similar test, in levels of concept knowing, applying and reasoning in terms of pre-test and post-test. Data analysis was possible through SPSS. To investigate the research hypothesis, independent and dependant t-test, Levin and Pearson Coefficient correlation measures were applied. The results indicated that in the case of pre-test, there exists a significant relationship between the mathematical intelligence and students' mathematical functioning in general and in levels of application and reasoning; however, in the level of knowing there does not exit such relation. As well, no significant relation was observed between these two variables, in general and in all the cognitive levels. This was due to the fact that in teaching mathematics based on the Gardner's multiple intelligences theory, students with low mathematical intelligence have greater advance in levels of application and reasoning compared to those with high mathematical intelligences.

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1. Introduction

Today, the educational system generally emphasized on verbal and mathematical intelligence. Tests, assignments and teaching approaches all support these two intelligences, and students' unique capabilities and talents in other areas are often neglected and overlooked (Kornhaber & Krechersky, 1990; Walter & Gardner, 1989, quoted in Plucker, 2001). Through such method only those students with high mathematical intelligences could learn properly, though only 25 percent of students have these high capabilities. However, with designing practices which include students' other capabilities, we could help other students to improve their mathematics, as well (Martin, 1998).

In Gardner's perspectives, multiple intelligences could have a vital role in students' learning. Being aware of multiple intelligences theory could motivate teachers to apply various methods to help all the students. According to

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