

Üstün Zekâlı Olan ve Olmayan Öğrencilerin Görsel-Uzamsal Yeteneklerinin Düzeylerinin Karşılaştırılması

A Comparison of Spatial-Analytical Ability Levels of Gifted and Average Students

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Öz

Bu araştırmanın amacı, üstün zekâlı öğrenciler ile üstün zekâlı olmayan öğrencilerin görsel-uzamsal yetenek alanında yetenek düzeylerinin farklılıklarını saptamaktır. Araştırmanın örneklemini 52 üstün yetenekli ve 110 normal öğrenci oluşturmaktadır. Örneklem, gruplar arası karşılaştırmalar yapmak için altı gruba bölünmüştür: Araştırmada üstün zekâyı ölçmek için Raven'in Standart İlerlemeli Matrisler Testi, görsel-uzamsal yetenek düzeyini belirlemek için DISCOVER – Uzamsal Analitik Zekâ Ölçeği'nin A-2 ve 3-5 formları kullanılmıştır. Araştırma analizleri sonucunda, üstün yetenekli 2. sınıf öğrencilerinin üstünlük derecesi ortalaması, normal 2. sınıf öğrencilerinin üstünlük derecesi ortalamasından, üstün yetenekli 3. sınıf öğrencilerinin üstünlük derecesi ortalaması, normal 3. sınıf öğrencilerinin üstünlük derecesi ortalamasından manidar şekilde yüksek çıkmıştır.

Anahtar Sözcükler: üstün zekâlı ve yetenekli çocuklar, görsel-uzamsal analitik zekâ

Abstract

The purpose of this study was to investigate if there was a difference between spatial-analytical ability of gifted students and that of average students. The sample included 52 gifted and 110 average students. The A-2 and 3-5 forms of the DISCOVER Spatial Analytical Assessment (Discovering Intellectual Strengths and Capabilities through Observation While Allowing for Varied Ethnic Responses) and the Raven's Standard Progressive Matrices were used to collect data. Findings showed that the mean of spatial analytical ability of the second grade gifted students were significantly higher than the mean of analytical ability of the second grade average students. Similarly, the mean of spatial analytical ability of the third grade gifted students were significantly higher than the mean of analytical ability of the third grade average students.

Key Words: gifted and talented children, spatial-analytical intelligence

Summary

Purpose: The purpose of this study was to investigate the difference, if any, between the spatial-analytical ability level of gifted students and that of average students. The sample included 52 gifted students as identified by the Raven's Advance Progressive Matrices and 110 students with average general intelligence. The sample was divided into 6 groups as 2nd grade gifted students (n= 23) and non-gifted students (n=21) who were attending gifted classrooms as inclusion students and non-gifted students who were attending regular classrooms (n=24); and 3rd grade gifted students (n=29) and non-gifted students (n=29) who were attending gifted classrooms as inclusion students, and non-gifted students who were attending regular classrooms (n=33). Gifted students and those average students who were attending gifted classrooms were the students of the same inclusion classrooms.

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Students who scored in the top 5% on the Raven's SPM were identified as gifted. Percentile of the A-2 and 3-5 forms of the DISCOVER-spatial analytical assessment were used to determine participants' spatial analytical ability level.

Results: Data analysis showed significant differences between the mean scores of the groups by ability level both for the second grade [$F(2-67) = 5.20; p < 0.05$] and the third grade [$F(2-90) = 9.31, p < 0.01$]. Findings showed that the mean of spatial analytical ability of the second grade gifted students ($M = 3.04; SD = 0.88$) were significantly higher than the mean of spatial analytical ability of the second grade average students ($M = 2.29; SD = 0.55$) who were attending regular classrooms. Similarly, the mean of spatial analytical ability of the third grade gifted students ($M = 2.86; SD = 1.16$) were significantly higher than the mean of spatial analytical ability of the third grade average students ($M = 1.70; SD = 1.02$) who were attending regular classrooms. However, no significant differences were found between gifted students and average students who were attending gifted classrooms as inclusion students. Also there was no significant difference between the scores of the non-gifted students who were attending the gifted classrooms as inclusion students and those who were attending regular classrooms.

Conclusions: Gifted students have higher cognitive skills related to spatial analytical ability (Kyllonen & Kristal; cited in Lohman, 1996, p. 103), such as mental rotation, visualization, figure-ground relation, and perspective (Eliot & Smith, 1983, cited in Stumpf & Eliot, 1999, p.144-146). Findings of this study support prior research as well as the relation between general intelligence and spatial-analytical ability (Cole, Fasnacht-Hill, Robinson, and Cordahi, 2001).

However there was not a statistically significant difference between gifted and average students who were inclusion students in the gifted classrooms. The finding can be explained by the possible effect of the enriched education operated in the gifted classrooms to which average students were also included. We can speculate that non-gifted students' spatial-analytical skills have developed significantly because of the differentiated instruction in the gifted classroom. However, the fact that non-gifted students of the inclusion classrooms did not score significantly higher than non-gifted students of regular classrooms is surprising even though non-gifted students of the inclusion classrooms had differentiated education.

This research has a number of limitations. First, the sample size is too small. Second, the sample does not cover many grade levels. Thus, the generalizability of the study is limited. More research is needed to uncover if there is a significant difference between spatial analytical ability of gifted students and average students who are identified by an IQ test. In other words, researchers should investigate whether spatial analytical ability makes a difference in discriminating gifted students from average students.