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COGNITIVE ABILITIES AMONG CHILDREN IN PRIVATE AND PUBLIC SCHOOLS IN BAGHDAD, IRAQ

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ABSTRACT

Background: Cognition, which includes thinking, knowing, remembering, judging, and problem-solving, is essential for everyday functioning. The readiness of schools plays a significant role in developing cognition. In Iraq, private schools have become increasingly popular. This study aimed to clarify cognitive differences between private and public schools. **Methods:** A total of 100 students were conveniently selected for the study. The Stanford-Binet Intelligence Scale, 5th Edition, was used to evaluate components of cognition such as fluid reasoning, knowledge, quantitative reasoning, visual-spatial abilities, and working memory. Student's t-test was used to examine the differences in each component of cognition between public and private schools. **Results:** The means of visual-spatial abilities, working memory, quantitative reasoning, and knowledge components significantly differed between private and public schools (p = 0.02, 0.02, 0.002, and 0.01, respectively). However, fluid reasoning did not differ significantly between private and public schools (p = 0.08). **Conclusion:** Private schools appear to enhance cognition among school children more than public schools.

KEYWORDS: Iraq, cognition, private schools, public schools, Stanford-Binet Intelligence scale.

INTRODUCTION

Cognition refers to the mental processes involved in gaining knowledge and understanding. These processes include thinking, knowing, remembering, judging, and problem-solving. They are essential for everyday functioning and encompass various domains that appear in perception, attention, memory, language, problem solving, and decision making.

Private schools in Iraq have become increasingly popular as alternatives to public education. Publishing on cognition in Iraq is scarce[1] and limited to personnel in education system.[2] This work was carried out to clarify cognition in private and public schools.

MATERIALS AND METHODS

A total of 100 students was conducted in Baghdad/ Iraq during the period from 1/3/2024 to 1/7/2024. They were selected conveniently.

The Stanford-Binet Intelligence Scales 5th edition (SB-5)[3] were used in this study. The SB Scales are a widely used tool for measuring cognitive abilities and intelligence. The test evaluates Fluid Reasoning (Solving novel problems without relying on prior knowledge), Knowledge (Accumulated information, academic skills, and facts), Quantitative Reasoning (Problem-solving and understanding numerical concepts), Visual-Spatial Processing (Understanding and manipulating visual information), and Working Memory (Holding and processing information temporarily for task completion). The results are often combined into an overall score known as the Intelligence Quotient (IQ).

RESULTS

Table 1 shows the values of visual spatial, working memory, quantitative reasoning, knowledge and fluid reasoning among children in public school were 11.8 ± 2.8, 10.3 ± 2.2, 12.0 ±1.8, and 13.3 ± 2.4, respectively, and in private schools were 13.1 ± 2.7, 9.7 ± 4.5, 11.7 ± 2.1, 13.2 ± 1.8, and 14.2 ± 2.7, respectively. Significant differences were noticed in visual spatial, working memory, quantitative research, and knowledge in children between private and public schools (p = 0.02,

0.02, 0.002, and 0.001, respectively). No significant difference was noticed in fluid reasoning in children between those in private and those in public schools (p=0.08).

Table 1: Cognitive abilities (visual spatial, working memory, quantitative reasoning, knowledge and fluid reasoning) among children in private and public schools.

Variable		Cognitive abilities				
		Visual Spatial	**Working memory**	**Quantitative reasoning**	**Knowledge**	**Fluid reasoning**
		Mean (SD)	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**
School						
	Public	11.8 (2.8)	8.0 (2.8)	10.3 (2.2)	12.0 (1.8)	13.3 (2.4)
	Private	13.1 (2.7)	9.7 (4.5)	11.7 (2.1)	13.2 (1.8)	14.2 (2.7)
	Statistical test	t=2.3 d.f.=98 p=0.02	t=2.2 d.f.=98 p=0.02	t=3.2 d.f.=98 p=0.002	t=3.3 d.f.=98 p=0.001	t=1.7 d.f.=98 p=0.08

DISCUSSION

The study showed the visual spatial ability (ability to perceive, interpret and create representations of spatial relationship and visual information in the environment) was significantly higher among school children in private school than that in public schools (p = 0.02). This finding might be explained by the fact that children in private schools have better access to resources and smaller class sizes, which contributes to enhanced cognitive development, including visual-spatial abilities. Literature stressed on readiness of school to develop visual spatial intellidgence.[4] Information in pictures and spatially rather than textually, is beneficial for visual spatial learning i.e., children often benefit from diverse instructional strategies. Public schools have standardized curricula that may not cater to children's strengths as effectively as private schools.

Working memory (holding a limited amount of information temporarily, allowing child to work with that information for tasks e.g., reasoning, comprehension, and decision making) was significantly higher among children in private schools than those in public schools (p=0.02). This finding might be explained by in private school's smaller class sizes allowing for more individualized attention, more resources available for specialized programs, curriculum flexibility and involvement of parents. Classroom setting, one on one tutoring and technology assisted learning enhance working memory.[5]

It was noticed that quantitative reasoning (a crucial skill encompassing the ability to understand, interpret, and work with numerical data in various contexts) among children in private schools was significantly higher than among those in public schools (p=0.002). The low quantitative reasoning in public schools is explained by the curriculum standard that ensure mathematics to essential skills in algebra and statistics, while in private schools there is more flexibility in their curricula choices, allowing the integrating of quantitative reasoning across subjects and adoption of innovative teaching methods. Other determinants of high quantitative reasoning in private schools are smaller class sizes, enhanced resources, parental involvement and emphasis on critical thinking.[6]

A significant higher knowledge among children in private schools than those in public schools (p=0.001). Finding high knowledge in private schools might be explained by the fact that private schools have more funding which leads to better facilities, small class size and more extracurricular opportunities which in turn contribute to a more enriched learning environment. Private schools tend to have students from high socioeconomic backgrounds which correlate with high academic achievement.[7]

No significant difference in fluid reasoning (ability to think logically and solve problems in novel situations, independent of acquired knowledge) was noticed between children attending private and those attending public schools (p=0.08). This finding might be explained by facts that the education system in Iraq emphasizes rote memorization and the acquisition of factual knowledge over critical thinking and problem-solving, this could lead to a stronger development of crystallized reasoning (ability to use learned knowledge and experience and relies on accumulated information, skills, and strategies that are acquired through education and cultural exposure e.g., vocabulary tests, general knowledge questions).[8] Culturally, there is a greater emphasis on tradition, respect for established knowledge, and adherence to proven methods.[9] Economic challenges and political instability impact the quality of education and the opportunities available for developing diverse cognitive skills.

CONCLUSION

Visual-spatial abilities, working memory, quantitative reasoning, and knowledge were higher among children in private schools compared to those in public schools.

However, fluid reasoning showed no significant difference between children in private and public schools.

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