



A Flynn effect among deaf boys in Saudi Arabia

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ABSTRACT

The Flynn effect was investigated among deaf boys in Saudi Arabia over 14 years from 1999 to 2013. The Colored Progressive Matrices Test was standardized for use with Saudi deaf boys in 1999 for three age groups from 10.3 to 11.8 years and was administered in 2013 to 100 deaf boys of the same three age groups. There was an increase of .306 IQ points a year. The rate of increase was greater for younger boys at .35 IQ points a year than for older boys at 0.27 IQ points.

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1. Introduction

It has been shown in numerous studies that intelligence increased in many countries from the early years of the twentieth century (Flynn, 1984, 1987, 2012; Lynn, 2013). These increases have been designated the Flynn effect and were first reported in the 1940s and 1950s in the United States (e.g. Smith, 1942; Tuddenham, 1948; Wheeler, 1942) and in Britain (e.g. Cattell, 1950; Scottish Council for Research in Education, 1949). They were later reported in continental Europe in a number of studies reviewed in Lynn (2013), and in several Asian countries including Japan (Lynn, 1982), China (Liu, Yang, Tunong, & Lynn, 2012), and South Korea (Te Nijenhuis, Cho, Murphy, & Lee, 2012).

The Flynn effect also has been reported in a number of economically developing countries including Kenya (Daley, Whaley, Sigman, Espinosa, & Neumann, 2003), Brazil (Colom, Mendoza, & Abad, 2007), Dominica (Meisenberg, Lawless, Lambert, & Newton, 2005), South Africa (Te Nijenhuis, Murphy, & Eeden, 2011), in several countries in sub-Saharan Africa (Wicherts, Dolan, Carlson, & van der Maas, 2010) and in the

Arabic-speaking countries of Sudan (Khaleefa, Abdelwahid, Abdulradi, & Lynn, 2008; Khaleefa, Sulmanand, & Lynn, 2009) and Saudi Arabia (Batterjee, Khaleefa, Ali, & Lynn, 2013).

The magnitude of the Flynn effect has typically been around 3 IQ points a decade (Flynn, 1984, 1987; Kanaya & Ceci, 2011), but has varied considerably for different tests, ages, countries and times. There is no consensus on the factors responsible for the effect which has been attributed to a more scientific way of thinking, greater or better education, improved nutrition, more cognitive stimulation, smaller families and other factors reviewed by Williams (2013).

The Flynn effect has been reported among children and adults with intellectual disabilities (Young, 2012; Hagen, 2007; Kanaya & Ceci, 2012; Nijman, Scheirs, Prinsen, Abbink, & Blok, 2010). We believe, however, that no study has examined the effect in deaf children. This is the objective of the present study.

2. Method

The Colored Progressive Matrices (CPM) Test was administered to a representative sample of 302 deaf boys aged 10 and 11 years in Saudi Arabia in 1999 by Zamzami (1999). In the present study the Colored Progressive Matrices Test was administered to a comparable sample in 2013, i.e., 14 years

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Table 1

CPM scores of deaf boys in Saudi Arabia in 1999 and 2013.

Age	1999			2013			Gains <i>d</i>	IQ gains	IQ gains per year
	N	Mean	SD	N	Mean	SD			
10.3–10.8	92	21.6	8.0	31	23.9	5.9	0.33	4.95	0.35
10.9–11.2	92	22.9	8.2	36	24.9	6.05	0.28	4.20	0.30
11.3–11.8	118	24.0	8.2	33	25.7	5.09	0.25	3.75	0.27

after the first study. The sample in the present study consisted of 100 deaf boys selected from the two Alamal Institutes for the deaf and from classes for the deaf attached to regular schools in Riyadh and was selected to match the samples in the Zamzami study. The boys were taught the normal curriculum by sign language.

In both studies the boys were in three age groups of 10.3–10.8 years, 10.9–11.2 years, and 11.3–11.8 years.

3. Results

Table 1 shows means and standard deviations of the Saudi deaf boys in 1999 and 2013. These are followed successively by the gain in scores expressed as *d* (standard deviation units), the gain in IQs, and the gain in IQs per year.

4. Discussion

The study contains three points of interest. First, there were Flynn effect gains in all three age groups averaging .306 IQ points a year. This result is closely similar to the increase of .355 IQ points a year in Saudi Arabia over the 33 year period from 1977 to 2010 for 8–15 year olds for the Standard Progressive Matrices reported by Batterjee et al. (2013). These rates of increase are similar to those present in the United States calculated by Flynn (1984) and reported in many other countries.

Second, this is the first study to report a Flynn effect gain for deaf children and to show that the effect is of the same magnitude as that for other populations. It appears therefore that whatever factors that have been responsible for the Flynn effect have affected deaf children as well as hearing children. There were no changes in the education of deaf children in Saudi Arabia during these 14 years that might explain the IQ gain. There is no consensus about what the factors responsible for the Flynn effect are and the present results do not contribute to the understanding of this problem.

Third, the magnitude of gains declined with age across the three age groups from 0.35 to 0.30 to .27 per year. This result is consistent with the results reported in Britain (Lynn, 2009), the United States and a number of other countries reviewed in Lynn (2013). A similar age difference has been reported in Saudi Arabia where an IQ loss of 5.6 points between the ages of 8 and 18 years has been reported by Batterjee (2011). Similar age differences have been reported in other Arab counties including Sudan (Khaleefa, Lynn, Abulgasim, Dosa, & Abdulradi, 2010), Syria (Khaleefa & Lynn, 2008a) and the United Arab Emirates (Khaleefa & Lynn, 2008b). It should be noted that these smaller Flynn effects in older age groups are obtained from cross-sectional performances referenced to western norms. The IQ declines with increasing age in school-aged children compared to same-aged western children may be attributable to less cognitively stimulating education.

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