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The secular rise in IQs in the Netherlands: Is the Flynn effect on g ?

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Abstract

IQ scores have been increasing over the last half century, a phenomenon known as the Flynn effect. In this study, we focused on the question to what extent these secular gains are on the g factor. Two IQ batteries: the Interest-School achievement-Intelligence Test (ISI) and the Groningen Final Examination Primary Education (GALO) yielded small and modest negative correlations between standardized gains and g loadings. As these studies employ large samples this suggests that the combined literature now shows a modest negative relationship between d (the secular change in test score) and g .

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1. Introduction

Many studies have shown that IQ scores have been increasing over the last half century. These increases have been reported in countries on all continents (Flynn, 2006). The most essential research question is to what extent these empirical gains are on the g factor and therefore reflect a functional increase of real-life problem solving ability rather than simply an increase in familiarity

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with taking tests or some other less cognitive function. In this paper, the correlation between secular gains and g loadings is tested using two datasets on tests that have not been analyzed before.

Jensen (1998, pp. 320, 321) was the first to ask the question whether secular score gains are correlated with g loadings. He reported data on four test batteries and concluded that these test's g loadings are not highly correlated with the amount of secular change in scores. Rushton (1999) showed that secular test score gains from the US, Germany, Austria, and Scotland had modest to small negative correlations with g loadings. He was the first to expand the discussion on the link between secular gains and the general mental ability factor by focusing on patterns in correlations with theoretically linked variables. He carried out a principal components analysis of the secular gains in IQ, along with, amongst others, inbreeding depression scores from cousin-marriages in Japan, and g loadings from the standardization samples of the WISC-R and WISC-III. The relevant findings were: (a) the IQ gains on the WISC, WISC-R, and WISC-III form a cluster, showing that the secular trend in overall test scores is a reliable phenomenon; and (b) this cluster is independent of a second cluster formed by inbreeding depression scores (a purely genetic effect), and g factor loadings (a largely genetic effect). It should be noted, however, that the factor solution does not show simple structure: there are substantial secondary loadings for many of the variables. Since Rushton's report suggesting secular trends are not strongly related to g , various other studies have been carried out (Colom, Juan-Espinosa, & García, 2001; Flynn, 1999a; Flynn, 1999b; Flynn, 2000; Must, Must, & Raudik, 2003; te Nijenhuis et al., submitted; Wicherts et al., 2004) which have produced conflicting results. The present paper aims to reduce the uncertainty regarding the question how strongly the Flynn effect is on the g factor by adding two new datasets to the discussion.

2. Method

2.1. Tests

2.1.1. Interests-school achievement-intelligence tests

The Interesse-Schoolvorderingen-Intelligentietests (Interests-School achievement-Intelligence tests) Vorm II (ISI Form II; Snijders & Welten, 1968) is a collection of tests, that measures interests, school achievement, and intelligence. Only the six intelligence tests are used in the present study. Using Carroll's (1993) terminology synonyms measures lexical knowledge (g_{cr}), opposites measures induction (g_{fl}), sorting words measures induction (g_{fl}), cut figures measures visualization (g_v), turning figures measures visualization (g_v), and sorting figures measures induction (g_{fl}).

2.1.2. Groningen final examination primary education

The Groninger Afsluitingsonderzoek Lager Onderwijs (Groningen Final examination Primary Education) (Kema & Kouwer, 1958) is a test of general intelligence, consisting of nine subtests. Synonyms measures lexical knowledge (g_{cr}), numbers measures quantitative reasoning (g_{fl}) and numerical ability (g_{cr}), verbal analogies measures induction (g_{fl}), figure analogies measures induction (g_{fl}), filling in signs measures quantitative reasoning (g_{fl}) and numerical ability (g_{cr}), filling in words measures cloze ability (g_{cr}), unfolding measures spatial relations (g_v), categories measures induction (g_{fl}), and sketch in figures measures visualization (g_v).

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