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General cognitive ability and the interplay between genes and environment

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2010

document version

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citation for published version (APA)

Vinkhuyzen, A. A. E. (2010). *General cognitive ability and the interplay between genes and environment: ZIE STATUS/PROEFSCHRIFT ivm. (administratieve) toerekening van deze promotie aan FPP ipv. ALW.*

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Classical twin studies have shown that individual differences in general cognitive ability in adults are largely due to differences at a genetic level. These studies, however, rely on several assumptions that may not hold for general cognitive ability. Based on an extended twin family study, we show that genetic factors underlying individual differences in general cognitive ability in adults are not only due to additive genetic factors, but also to genetic dominance and genetic variation due to positive assortative mating and that the relative contribution of genetic and environmental factors is not equal across the entire population, but varies as a function of exposure to environmental conditions. This implies that the well recognized high influence of additive genetic factors partly reflects more complex processes such as genetic dominance, positive phenotypic assortment, gene-environment correlation and gene-environment interaction.



GENERAL COGNITIVE ABILITY AND THE INTERPLAY BETWEEN GENES AND ENVIRONMENT Annabelle Vinkhuyzen

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