

A cross-sectional test of the similar-trajectory hypothesis among adults with mental retardation

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Abstract

The similar-sequence and the similar-structure hypotheses are the two mainstays of the developmental approach to mental retardation. In the present study, a third way, the similar-trajectory hypothesis, is described and illustrated using the WAIS-R results of adults with and without mental retardation aged from 20 to 54 years. The whole sample ($N = 633$) comprised 306 participants with mental retardation and 327 without mental retardation. Hierarchical regression analyses comparing the two groups showed similar evolutions of scores with increasing age for verbal and performance scales. These results seem to validate the similar-trajectory hypothesis, at least for the present samples and for the aspects of cognitive development considered here. Some weaknesses and implications of the study are considered in the discussion.

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The developmental approach to mental retardation is based on the idea that persons with cultural-familial mental retardation have the same cognitive characteristics as their mental-age peers without mental retardation because, as a group, the former simply constitute the lower extremity of the normal distribution of intelligence (Hodapp, Burack, & Zigler, 1990, 1998; Hodapp & Zigler, 1997; Zigler, 1967, 1969, 1984; Zigler & Hodapp, 1986). From a cognitive standpoint, the sole differences between the two groups would lie in the slower cognitive development and the lower level of functioning ultimately achieved by those with mental retardation. As such, this theoretical conception excludes from its explanatory field the persons

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with mental retardation due to brain damage, whatever their causes. On the other hand, it does include as a prominent source of variation in cognitive performance several personality-motivational factors, such as overdependence on adults, wariness, outer directedness or lower self-concept (Balla & Zigler, 1979; Merighi, Edison, & Zigler, 1990; Zigler, 1971, 1999; Zigler & Balla, 1982). These factors are supposed to engender a cognitive under functioning which can explain the lower performances often observed in persons with mental retardation when they are compared with typical subjects of the same mental age.

The similar-sequence and the similar-structure hypotheses are the two mainstays of this cognitive and motivational model of mental retardation. Indeed, one of its basic tenets is that there are *regular* and *invariant* sequences of development which, by reason of their universality, are necessarily identical in children with or without mental retardation (Hodapp, 1990; Hodapp & Burack, 1990). Consequently, apart from the rate of growth, the succession of stages and sub stages of cognitive development must take place in the same order in these two types of subjects. And in effect, numerous studies have given results congruent with this hypothesis, even in the case of persons with organic mental retardation (Cicchetti & Pogge-Hesse, 1982; Hodapp & Zigler, 1990; Weisz & Zigler, 1979; Weisz, Yeates, & Zigler, 1982). The second central hypothesis which can be derived from the developmental model states that when matched on mental age with intellectually average children, those with mental retardation should have comparable performances in the cognitive domains under consideration. Stated otherwise, they should not exhibit, relative to their average peers, either cognitive strengths or weaknesses. From this standpoint, empirical results are less clear. They show that this second hypothesis does not hold for persons with organic retardation, and, sometimes, not even for subjects of cultural-familial etiology, who do worse than average participants, particularly on information-processing tasks (Hore & Tryon, 1989; Mundy & Kasary, 1990; Weiss, Weisz, & Bromfield, 1986; Weisz & Yeates, 1981; Weisz et al., 1982).

A third way to test this model of mental retardation might be to focus on the trajectories of development, that is, to study whether the kinematics of cognitive abilities over age is similar in persons with and without mental retardation. The notion of developmental trajectory is very widespread in the psychometry of intelligence (McArdle, Ferrer-Caja, Hamagami, & Woodcock, 2002; McArdle, Hamagami, Meredith, & Bradway, 2000). For example, within the context of the theory of fluid (Gf) and crystallized (Gc) intelligences (Cattell, 1971; Horn, 1986, 1994), it is now widely acknowledged that the various components of intelligence do not “rise” and “fall” in the same way across the life span (Horn, 1979, 1998; Horn & Hofer, 1992). The fluid component generally reaches its asymptotic level at 14 or 15 years of age whereas the crystallized component continues to grow well beyond adolescence. Also, fluid intelligence declines steadily from the end of the biological maturity, while crystallized intelligence only declines in old age. These distinctive trajectories of components of development offer multiple avenues to the study of mental retardation, and many descriptive studies on measures of psychometric intelligence or adaptive behavior have already been conducted to investigate this question (e.g., Bailey, Hatton, & Skinner, 1998; Dicks-Mireaux, 1972; Dykens, Hodapp, & Evans, 1994; Fisher & Zeaman, 1970; Hatton et al., 2003; Hodapp, Dykens et al. 1990; Janicki & Jacobson, 1986; Mervis, Klein-Tasman, & Mastin, 2001; Nihira, 1976; Prasher, 1999; Schlottmann & Anderson, 1982; Silverstein, 1966; Widaman, Borthwick-Duffy, & Little, 1991). However, in spite of this attention, the study of kinematic trends of cognitive growth does not seem to have been viewed nor formalized as a means of testing the validity of the developmental conception of mental retardation. In fact, if the similar-sequence and the similar-structure hypotheses are well-known in the field of mental retardation and have given rise to numerous empirical tests, the similar-trajectory hypothesis has never been put forward as such.

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