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## Relationships between intelligence and self-concept parameters in children

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### Abstract

The article is devoted to the analysis of self-concept and intelligence formation mechanisms in children of 6, 7, 10, 13 and 16 years of age (monozygotic twins and same-sex dizygotic twins, 94, 77, 108 and 211 pairs, respectively). Psychometric intelligence (by the Wechsler Intelligence Scale for Children – WISC) and self-concept parameters (by the Dembo-Rubinstein method) were measured. We analyzed the dynamics of inter-age and intra-age correlations. Our findings indicated the presence of reciprocal influences between self-concept and intelligence including latent and long-term ones. The integration of cognitive and personal characteristics increases with age in groups with a higher intellectual level. The results led us to the conclusion that there are complex systemic interrelations between cognitive and personal characteristics in the ontogenesis.

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### 1. Introduction

Self-evaluation deals with somebody's own strengths and weaknesses and is based on a subject's perceptions related to various aspects of their own personality, appearance, acts and results of activity. Self-evaluation comprises a cognitive component (self-concept) and an affective component (self-esteem). Currently, self-evaluation is viewed as a complex multidimensional construct consisting of facets that influence a subject's real

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life in a specific way [1]. For instance, academic achievements are primarily associated with academic self-concept with only slight dependence on self-esteem.

The cognitive and affective components of self-evaluation are interrelated on a structural level [2]. The clearer a person's self-concept is, the higher his self-esteem is. According to the results of the Longitudinal Study of Generations (4 generations were studied; the respondents' ages varied from 16 to 97 years), self-esteem increases from adolescence to middle adulthood [3]. Self-esteem reaches its peak at around 50 years and decreases in old age. The research including cross-lagged regression analyses has shown self-esteem to serve as a cause rather than a consequence of one's achievements and has an obvious effect on humans' real life. This is consistent with the results obtained by some other researchers [4], [5]. The question of whether it is self-esteem that influences life success and academic achievements or vice versa is controversial [6], [7]. A number of researchers [8] claim that far from determining future success, high self-esteem may even bring harm.

Many psychologists view self-concept as the cornerstone of children's development [9], [10]. The construct is believed to develop in children at an early age [11]; young children are capable of identifying different parameters of the self-concept. At the age of four or five years, a child can make standard self-evaluations [12], [13]. Davis-Kean and Sandler [14] believe that by the pre-school age children's command of language and cognitive abilities are high enough to discuss their own selves.

Although the cause-and-effect relations between the parameters of self-evaluation and other developmental characteristics are still unclarified, one may claim that children's self-esteem and self-concept are associated with numerous behavioral, academic and psychological consequences [15]. The higher the self-esteem and self-concept levels are, the better social and interpersonal relations are created between children and adolescents and the more academic success they gain [16], [17], [18]. The low levels of self-esteem and self-concept correlate with negative consequences for children and adolescent adaptation: social anxiety, alienation, suicide, alcohol and drug abuse, offences [18], [19], [20].

As a result of the meta-analysis of therapeutic interventions aimed at enhancing children's self-evaluation, it was found that improvements in the children and adolescents' self-esteem and self-concept were accompanied by significant changes in their behavior, personality sphere and academic records [21]. The actions aimed at changing self-esteem and self-concept proved to be more efficient for children's adaptation than those aimed at particular behavioral and social skills.

Young children have a very high self-concept that becomes more realistic and predictable as the person grows older [22]. This may be explained, among other things, by changes taking place during school years as children progress to each next form and competition between students becomes more and more pronounced alongside with growing differences between them [23].

The study of changes in children's self-concept with age led to the development of the Differential-Distinctiveness Hypothesis [24]. This theoretical model describes how the facets of a child's self-conception are differentiated as he or she grows older. The authors believe that the level of differentiation in children's responses increases as they grow older; however, the process appeared to be more complicated than it was thought before. Highly-correlating components of self-conception in younger children's responses have been found to retain the high correlations as the children grow older. On the contrary, the components of self-conception having but slight correlation in younger children's responses tend to become even more differentiated as the children grow.

Self-evaluation is an integral characteristic of the sense of psychological wellbeing and is closely related to the level of social adaptation. It may be supposed that the multi-factor mechanisms of the self-concept and intelligence formation are mutually connected through complex interrelations. The purpose of our study was to analyze reciprocal influences of self-concept and intelligence in order to reveal their long-term developmental effects.

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