

## Towards Modern Approaches of Intelligence Measurement for Clinical and Educational Practices

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**Abstract :** Intelligence research is one of the oldest fields of psychology. Many factors have made a research on intelligence, defined as reasoning and problem solving [1, 2], a very acute and urgent problem. Thus, it has been repeatedly shown that intelligence is a predictor of academic, professional, and social achievement in adulthood (for example, [3]); Moreover, intelligence predicts these achievements better than any other trait or ability [4]. The individual level, a comprehensive assessment of intelligence is a necessary criterion for the diagnosis of various mental conditions. For example, it is a necessary condition for psychological, medical and pedagogical commissions when deciding on educational needs and the most appropriate educational programs for school children. Assessment of intelligence is crucial in clinical psychodiagnostic and needs high-quality intelligence measurement tools. Therefore, it is not surprising that the development of intelligence tests is an essential part of psychological science and practice. Many modern intelligence tests have a long history and have been used for decades, for example, the Stanford-Binet test or the Wechsler test. However, the vast majority of these tests are based on the classic linear test structure, in which all respondents receive all tasks (see, for example, a critical review by [5]). This understanding of the testing procedure is a legacy of the pre-computer era, in which blank testing was the only diagnostic procedure available [6] and has some significant limitations that affect the reliability of the data obtained [7] and increased time costs. Another problem with measuring IQ is that classical line-structured tests do not fully allow to measure respondent's intellectual progress [8], which is undoubtedly a critical limitation. Advances in modern psychometrics allow for avoiding the limitations of existing tools. However, as in any rapidly developing industry, at the moment, psychometrics does not offer ready-made and straightforward solutions and requires additional research. In our presentation we would like to discuss the strengths and weaknesses of the current approaches to intelligence measurement and highlight "points of growth" for creating a test in accordance with modern psychometrics. Whether it is possible to create the instrument that will use all achievements of modern psychometric and remain valid and practically oriented. What would be the possible limitations for such an instrument? The theoretical framework and study design to create and validate the original Russian comprehensive computer test for measuring the intellectual development in school-age children will be presented.

**Keywords :** Intelligence, psychometrics, psychological measurement, computerized adaptive testing, multistage testing

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