

**Editorial:
High Ability Assessment**

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Worldwide increases have been seen in the interest in and need for highly achieving persons. Needless to say, however, not all persons are highly achieving. The capacity to identify those, in good time, who will excel and how these persons can best be nurtured and encouraged is a greatly desired goal of every society.

The authors published in this special issue of *Psychology Science Quarterly* are distinguished experts in the field of high ability assessment. They were directly approached and asked to share exciting developments in their individual areas of specialization. Nevertheless, all of them were blindly peer reviewed. The range of topics covered in these contributions is vast. They encompass new and innovative answers to old dilemmas such as talent profiles and underachievement. New forms of measurement are introduced, such as a test-battery and neuropsychological assessments. Innovative approaches to assessing creativity and environmental variables are submitted. But of course articles pursuing more theoretical objectives have also been submitted. For example, in practice, most identifications of gifted children are based on single dimensional models of talent. Holocher-Ertl, Kubinger, and Hohensinn (2008) use the Viennese diagnostic model of high achievement potential as the basis for a theoretical analysis of how appropriate this standpoint is. They present several arguments and raise serious concerns that traditional approaches to the identification of gifted children are by no means adequate. In addition to abilities, they advocate also taking consideration of other aspects of personality, the environment and their interactions. Furthermore, they generate an interesting perspective to the assessment of psycho-diagnostic instruments by introducing utility. In fact, the practical implications of assessments of high ability are by no means easily translated into commensurate educational measures. The authors discuss a series of measuring instruments, singling out those which are currently most effective and showing where additional improvement is urgently needed.

Shavinina (2008), who recently attracted a great deal of attention with her study on Nobel prize recipients, uses sharp criticism of conventional intelligence tests to open her article. From a theoretical perspective, she challenges the trait orientation, which has previously only investigated external manifestations of intelligence, creativity etc., but not their psychological basis (or “psychological carriers”). Her analyses, based on the cognitive-developmental theory of giftedness, view giftedness as a result of the protracted process of the construction and growth of one’s cognitive resources, leading to a unique cognitive experience beyond which there are periods of heightened cognitive sensitivity. The author names nine methodological and procedural principles which should guide the identification of the gifted, and presents examples of new intelligence tests. Among these nine principles is the obligation that new intelligence tests should examine the psychological mental context generated by gifted individuals themselves. However, she also issues a warning that new

tests should not evaluate psychological functions like attention, memory, and mental speed. All things considered, Shavinina's contribution will certainly set new standards.

One of the greatest challenges in giftedness research is the phenomenon of underachievement which was already detected in the first large-scale study in the field conducted by Terman (1925). A substantial proportion of gifted individuals are not successful in translating their potentials into corresponding achievements. Such schoolchildren are in particular danger of being overlooked in ordinary identification procedures, since they are usually inconspicuous. For the most part, deficits in motivation and concentration are made out to be the main reasons here. Stoeger, Ziegler, and Martzog (2008) demonstrate that deficits in fine motor skills can be a factor in underachievement. The significance of this finding is, firstly, that the list of variables which are taken into consideration in the diagnosis of underachievement has been expanded. Second, in future efforts to identify gifted schoolchildren, care should be given to utilize measuring instruments which place little demand on fine motor skills. For example, the implementation of speed tests would overlook a segment of pupils with deficits in fine motor skills and the type-II-error would be raised.

Phillipson (2008) with his Optimal Achievement Model introduces a new method for the assessment of underachievement. This method circumvents many of the disadvantages which are associated with alternative models such as the absolute split method, the simple difference method and the regression method. This manuscript unveils a splendid resource for researchers whose work broaches this topic. Essentially, the author suggests measuring student potential (P) and achievement (A) using the Rasch model and calculating an achievement index for each individual. This allows considering underachievement independently from various random attributes in the sample. The results with which Phillipson demonstrates the utility of his model are highly interesting and demonstrate the method's inherent potential. While the proportion of underachievers is usually projected with specifically prescribed criteria, these figures can now be estimated with the Optimal Achievement Model. For example, Phillipson found that in Hong Kong, consistently one of the leading countries in international comparative student assessment studies such as PISA, the proportion of underachieving students range from 10 % at the 50-59th percentile band up to 30 % at the >95th percentile band for Primary 3 to Secondary 1 students, and an astonishing 50 % of Secondary 3 students. The editors of this special issue of *Psychology Science Quarterly* hope that this new method will set new standards in the investigation of underachievement.

Comprehensive assessments of giftedness are rare. In most cases, economic restrictions limit assessments to a few, often only singular, variables. Therefore, identifications are usually inferior to the theoretical guidelines they are based on, are often methodologically unsatisfying, and can only provide practitioners with few indications on how the education of gifted individuals should be designed and conducted. In the meantime, the idea that subsequent top performances are the result of a multitude of variables belongs to the general body of thought in the field. Interestingly, Heller and Perleth (2008) arrive at a deduction, basing their work on the Munich Model of Giftedness, similar to that reported by Holocher-Ertl et al. (2008) in this special issue: In addition to ability factors, assessments should also be made of other personal traits and environmental factors. These conditions are fulfilled brilliantly by the Munich High Ability Test Battery (MHBT), which represents the results of over a decade of painstaking research by the authors. It includes, among others, scales for the assessment of intellectual, creative and social abilities as well as measurements of interests, motivation, learning emotions, self-concepts or family and school climate, educational style,

quality of instruction, etc. Following a description of the MHBT, the authors offer information pertaining to its objectivity, reliability, validity and the standardization procedure. Additionally, a discussion on talent profiles is provided. It is certainly no exaggeration to maintain, that the MHBT is the first test battery of its kind, world-wide.

In the identification of high ability, assessments made by important others serve several important purposes. Particularly important are assessments made by teachers and parents. Their opinions are often the first indicators of potential giftedness. In pre-school these types of assessments are very likely the method of choice. However, simple judgments are not highly reliable. Scientifically and theoretically endorsed checklists are preferable however those currently available have been recently subjected to strong criticism. Fortunately, Sommer, Fink, and Neubauer (2008) have accepted the challenge to develop new checklists. These permit teachers and parents to form an evaluation of intellectual, creative and social abilities. Initial studies on the quality of these checklists are providing very encouraging findings. Most of the reliabilities were sufficient. Analyses of validity show a high correspondence between assessments of cognitive intelligence made by parents and teachers, and psychometric test scores.

The theory of multiple intelligences developed by Howard Gardner is considered to be a substantial advancement in the development of psychometric intelligence constructs. Above all, the theory-driven, interdisciplinary argumentation is regarded to be a major step forward and away from the inductive-static methods at the base of many other predominant theories of intelligence. Until now, a major disadvantage has been that no convincing measuring instruments based on Gardner's theory have been produced. Tirri and Nokelainen (2008) in their manuscript, take an exceptionally important step in rectifying this deficit. They use their article to present the Multiple Intelligence Profiling Questionnaire III (MIPQ III). In an empirical study they investigate several aspects of the quality of the measurements made. The scales have satisfactory reliability coefficients and the confirmatory factor analyses show good generalizability. The results are certainly not only of interest for giftedness researchers. First and foremost, numerous practitioners who conduct their work on the basis of Gardner's theory will be supplied with a valuable instrument in the MIPQ III scales.

Since giftedness research has been established as a scientific discipline, a persistent discussion has been conducted on the theoretical status of talents and gifts. For a long period of time it appeared that giftedness could be defined in terms of a personal trait, which is responsible for achievement. In recent years, however, the converse position that actions and achievements provide better indicators has been gaining in importance. Several studies have demonstrated that prior-knowledge is a better predictor than general abilities, particularly IQ. Admittedly, it is theoretically unsatisfying to equate high achievements with giftedness, since it is actually achievement excellence which is supposed to be accounted for. However, based on the Actiotope Model of Giftedness, Ziegler and Stoeger (2008) argue that learning, i.e. developing achievement is more important than personal traits for attaining high levels of achievement. Among other findings they were able to show that high achievement can be better predicted over a temporal distance of six months through the learning orientation of the subjective action space than through intelligence.

While the other contributors to this special issue tend to act on the assumption of a gifted child and then pursue the question of will it ever be able to attain a state of achievement excellence, Gruber, Lehtinen, Palonen, and Degner (2008) take the opposite perspective on the issue. They ask, retrospectively, in what ways one could have been able to recognize

high achieving persons beforehand. Their answers are brilliant and groundbreaking: The social context in which expertise was acquired is, most probably, the most important determinant of the quality and quantity of learning processes, and therewith the achievement level which is later attained. How fertile and useful these new perspectives will prove to be for giftedness research is demonstrated through three case studies portraying highly successful professionals (a jazz guitarist, a consultant and a scientist).

Without a doubt, neuropsychological assessments of giftedness will see huge gains in importance in the future. The Chinese Academy of Sciences is counted among the leading institutions in this field, worldwide. In their manuscript, Liu, Shi, Zhao, and Yang (2008) report on a study in which comparisons were made between intellectually gifted children and intellectually average children. The focus of the study was on systematic differences in event-related potential parameters, which are associated with intelligence and cognitive processing. The authors do, in fact, succeed in substantiating distinctions, among others in Delta, Alpha 2 and Beta1 power activity. Correlative analyses were able to expand on these findings, for example correlations in the high ability group were confirmed concerning visual search ability and abstract matching. One résumé is that spectral EEG parameters are a good method to discriminate highly intelligent children from the average. After having read this highly interesting article, one cannot shake the feeling of having had a glance at the future of giftedness research.

One of the most interesting, although still not fully understood, findings of giftedness research is that extreme discrepancies in abilities are more common among the most and least able children than among average ability children. This naturally raises a series of noteworthy questions, which Lohman, Gambrell, and Lakin (2008) address systematically. Of particular interest to them is the question of whether or not composite scores, which are averaged across ability domains, actually exclude many children who are talented for a certain domain. A clear alternative would be the utilization of talent profiles. Admittedly, they are afflicted with diverse drawbacks. After the authors conclude a competent discussion of the major issues surrounding the measurement of ability profiles, they introduce a method for categorizing score profiles. This highly interesting and constructive contribution produces evidence for the reliability and stability of score profiles. To this end, they make use of standardization data stemming from the Cognitive Abilities Test.

In their contribution, Holling and Kuhn (2008) make a substantial and important contribution to the branch of research concerning the relationship between intelligence and creativity. They define giftedness as a high level of fluid intelligence. Divergent thinking, which is central to creative performance, is conceptualized as a latent cognitive ability. In an empirical study the authors compare gifted ($IQ > 130$) and non-gifted ($IQ \leq 130$) groups of students. They compare the latent structures of verbal, figural, and numerical divergent thinking abilities across levels of giftedness. Interestingly, concerning divergent thinking, the assumed measurement structure of latent abilities remains, by and large, similar across groups of differing abilities. However, they also found large latent mean differences between the two ability groups. In contrast to some studies in the literature, the gifted group of students exhibited better divergent thinking in all content domains. We are pleased by the prospect that this study will inspire further stimulating research.

In recent years research scientists have increasingly adopted the position that the ultimate goal of gifted education is to encourage innovative and creative contributions to society. One problem has always been that, on average, correlations between most measures of giftedness

and creativity only come to about .20. This and the notorious deficiencies in objectivity, reliability, and validity associated with most tests of creativity, necessitate the development of new measuring instruments. Admittedly, the construct of creativity has been exposed to frequent assaults, which go so far as to dismissing it altogether. This makes the submission by Grigorenko, Jarvin, Tan, and Sternberg (2008), which supplies excellent proposals to resolving this predicament, all the more appreciated. The authors present a dynamic approach to creativity. This is widely removed from traditional approaches which tend to be built around the conception that traits are inflexible. Furthermore, the authors present an extremely promising approach to measuring creativity. In summation the authors supply very interesting and, with all probability, groundbreaking suggestions on the synthesis between the measurement and encouragement of creativity.

In closing we would like to extend our sincere thanks to Franzis Preckel and Klaus Kubinger, without whose help this special issue would not have been possible. Their advice led to substantial and conceptual improvements. Moreover, their input was decisive in assuring the quality of the articles printed in this special issue of *Psychology Science Quarterly* on high ability assessment. It would be wonderful if it in some way contributes to an improvement in this important field of psycho-diagnosis by stimulating our readers and raising awareness of new methodological practices. In the long term it would be an even greater accomplishment, should it be able to inspire intra scientific dialogues as well as dialogues between scientists and practitioners.

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