

SZILVIA FODOR, PHD:

CHALLENGES AND PRINCIPLES OF TALENT IDENTIFICATION: A PRACTICAL GUIDELINE FOR ABILITY-BASED GROUP-SCREENING

There is a growing demand for talent identification methods and reliable ability assessment tools in Europe, partly as a result of an increasing interest in psychological and scientific methods, but also as a result of the growing number of various talent support programs at schools and other educational services. This poses a professional challenge to psychologists involved in identification and some questions should be answered carefully, like ‘What are the best practices of talent identification?’, ‘Is identification an indispensable part of a talent support program?’ or ‘How should one set up a complex talent identificational program in an institution?’ This summary gives a practical guideline to navigate through the critical parts of identification and support practitioners to set up an appropriate and tailor-made screening system for various talent support programs.

THEORETICAL CHALLENGES OF TALENT IDENTIFICATION BY ABILITY ASSESSMENT

Abilities matter: they are necessary prerequisites of eminence in a given field. But they are also in constant and sometimes asynchronous development, dependent on practice, prone to environmental influences, can be modified by testing practices, and their assessment is liable to test-anxiety and test-motivation. How does it affect the process talent identification and how can we cope with these challenges? First the most critical theoretical issues in talent development and identification will be reviewed, then a practical answer will be provided about how to balance between these challenges and set up the basic principles for identification

Talent as a result of development

Talent models and definitions of the past decades (e.g. Gagné, 2004; Subotnik, Olszewski-Kubilius, & Worrell, 2011) emphasize that giftedness should not be seen as a generic and innate quality of a person, but rather as a potential that must be nurtured and developed to achieve eminence in a given field. They put the developmental aspect of talent into focus and argue that “individual abilities are malleable, need to be deliberately cultivated, and do matter, particularly abilities in specific talent domains; different talent domains have different developmental trajectories, varying as to when they start, peak, and end; and opportunities provided by society are crucial at every point in the talent-development process” (Subotnik, Olszewski-Kubilius, & Worrell, 2011, 4.). Therefore the developmental focus of abilities should be integrated into the identificational process, as well as all the factors influencing this development, like the socioeconomic and minority cultural background, developmental unevenness, emotional intensities and asynchronous development (Wellisch & Brown, 2012), and also the sheer variety of gifts and several degrees of giftedness.

Developmental characteristics: dyssynchrony

Dyssynchrony refers to the uneven development of gifted children (Terrasier, 1985). They often suffer from a lack of synchronicity in the rates of development in their intellectual, affective and motor progress, which affects many aspects of their lives, and may result in further psychological problems. Dyssynchrony has two aspects: internal and social. Internal dyssynchrony refers to disparate rates of intellectual, psychomotor, language and affective development, while social dyssynchrony is about the discrepancy between the speed of the

mental development of the gifted child and that of his or her age peers. It has a strong effect on the identification, because, on the one hand, we cannot be certain about the developmental stage of the measured ability, so a pre-matured ability may be considered outstanding, while another that matures later may seem weak or below average. On the other hand, due to the dyssynchrony of abilities, outstanding and weaker characteristics may masquerade each other, so they are very difficult to be measured properly.

Variety of domains and abilities

During talent identification it is recommended to measure as many fields as possible in order to discover outstanding abilities in several fields and give place to diversity. However, given the finite number of tools and the limits of the attention span and energy of students, psychological measures usually focus on some predefined criteria, mainly based on the requirements of the talent programs available. Consequently, measurements inevitably provide only a reduced picture of the person depending on the chosen focus of the given system. As the purpose, the conceptualization of talent and the tools of the measurement are determined by the given program, they can be highly diverse (Sternberg & Davidson, 2005), so identification should strive to provide as complete a picture as possible, but one must be aware of its limitations, and a delicate balance should be set up with a differentiated, yet economical and short identificational system, with the applicable resources and limitations in mind.

Contextual factors and their interactive nature

Beyond the diversity of individual characteristics, the dynamic interaction of individuals and the environment should also be taken into consideration, and thus the focus should be rather on how one interacts with the environment, not on personal traits (Ziegler, Vialle, & Wimmer, 2013). Environment is understood in a broad sense, including the cultural, socio-economic and economic context, which also determines the goals and circumstances of the identification, as well as the conceptualization of talent in general.

Diversity of programs and evaluational criteria

The diverse focus and parameters of talent support programs add another aspect to the identificational process beside the individual and environmental factors. In addition to the cautious selection of assessment tools and methods, the evaluation of data and its algorithm is of high importance. The decision-makers of a program should decide which characteristics are needed in what level, because some traits may be needed in an above or highly above average level, other characteristics are enough in an average level, while some are acceptable (or even preferable) in a below average level, for example in a program to develop one's weaknesses. It is also necessary to know how many people can be chosen into the given program, because it significantly determines the cut-off scores of test results.

In summary, identifying 'talented persons' in general is basically impossible concerning the complexity of factors influencing the developmental process and the diversity of talent support programs. Therefore, instead of identifying persons as 'talented' it is more useful to measure individual and contextual characteristics with the aim of identifying personal learning pathways leading to excellence (Ziegler & Stöger, 2004b). This way labelling can be avoided, the talent support activity can stay more action-oriented, thus identification may provide tools and a reference point for further pedagogical intervention.

But then the question arises: having all this in mind how can a school or an institution set up a sophisticated, but economic and fair identificational system? First, it should be decided whether identification is necessary at all or not. Balancing the arguments for and against it may be concluded that identification is necessary and useful in an institution. Then, as a second step, there are some principles to consider which should be followed during the identificational process to provide a theoretically-based and reasoned system. As a final step, institution should think over their actual needs and goals to decide on the concrete tools and methods of identification and work out their own identificational system.

IS TALENT IDENTIFICATION A NECESSARY ELEMENT OF TALENT SUPPORT?

Before setting up a comprehensive talent identification system, one must consider whether the institution actually needs talent identification or not. Sometimes it seems to be useful and necessary, but in some cases it is not needed.

There are several arguments that stand in favour of talent identification. Why can identification be useful and effective, what are the 'pros' for identification?

- *Information on students about individual needs* : Psychological assessment that may target not only abilities, but also many other characteristics like self-concept, anxiety, interest can provide a lot of information to understand the individual traits of students and define the direction of further support. In addition to tests and questionnaires, other methods such as teachers' observations or consultation with parents may also be useful, and mapping the environment can also be important to define the individual needs, characteristics and learning paths.
- *Identification of underachievers*: Ability tests may highlight outstanding potential even if that is not revealed by school performance. According to Harmatiné (2012) 10–20% of secondary school drop-outs are talented, and about half of them are underachievers and their school performance are under their abilities. Consequently, a few percentages of students would definitely not be assigned to the "talented" category based on their marks or the teachers' descriptions, despite their outstanding abilities.
- *Objective measurements to establish potential*: Despite the difficulties of ability assessment, standardized tests provide an objective result of individual developmental advantages in a given field and a more reliable indication of individual characteristics compared to the age group.
- *Selection to a specific program, with specific goals*: Talent support programs are often launched with very clear objectives, and their future participants – most often in a limited number - are searched for on the basis of well-defined characteristics. The more precise the program goals and the needed characteristics are, the more precise assessment can be carried out. For such a clearly-defined program assessment may provide a relatively reliable estimate on who would profit most from the given activity.
- *Sensitisation*: A complex talent identification system makes the teaching staff and also the parents more sensitive to the topic of giftedness. Measuring diverse characteristics may highlight that there are many ways of being above average, while providing detailed information and individual profiles draws attention to the importance of tailor-made, individual support.
- *Practical considerations*: Talent identification is often necessary due to the limited access to or limited number of participants in a program, so it should be somehow decided whom to

include. In some cases talent identification is a formal prerequisite for applying various grants and financial support, and provides a professional justification of selection.

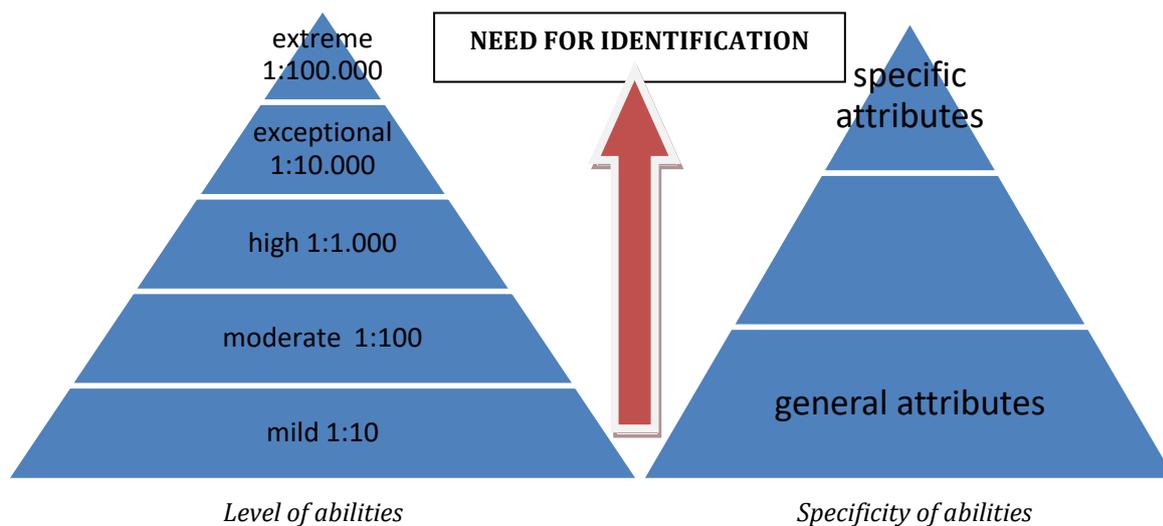
In addition to the positive aspects of identification, there are some arguments against it, which draw our attention to the difficulties of identification and why it can be problematic:

- *Provide activity, instead of assessment:* Talent - interpreted as an outcome of a developmental process requiring adequate challenges and the freedom to act – does not necessarily require a test-based identification to nurture, but rather challenging and interesting activities. So instead of finding out ‘who is talented’ it is recommended to examine ‘what helps the individual to become a talent’. In addition, instead of ability assessment it may be more useful to allocate resources to devising challenging activities and to focus on exploring the individual learning paths (Ziegler & Stöger, 2004).
- *Talent support for all:* Borland (2005) underlines the feasibility of talent support without ‘talented children’, which means that in an inclusive talent support system, targeting all, there is no need to pre-define the participants. This approach considerably enriches the scope of talent support and opens the way to involving marginalised social groups and decreasing the achievement gap (Gyarmathy, 2013).
- *“Self-selection” as identification:* Talent support activities with the goal of raising interest, broadening perspectives, introducing new topics or developing widely used soft skills do not require any special previous knowledge and achievement, but motivation, interest and wish to participate. Motivation can be best measured through behavioural ‘signs’ such as application and participation, so it may be enough to use these as criteria for being accepted. In addition, a program may also formulate its own expectations about the necessary characteristics of participants, which may serve as a basis for ‘self-nomination’.
- *Negative effects of labelling:* Labelling is a socially prescribed system of categorizing individuals based on various traits or characteristics they exhibit and have a powerful influence over how individuals interact with their social environments (Rist, 2011). The theory is based on the understanding that learning occurs in a social setting and that the expectations of the social environment strongly influence the actions and opportunities of its members with repeatedly expecting a certain behaviour from people. Labelling is a catalyst for assigning social roles, often results in a self-fulfilling prophecy and directly impacts academic and social self-concept. Stereotype threat can be another negative consequence of labels and the behavioural expectations associated with them: when individuals perceive that their label places them at some sort of disadvantage and that their performance is subject to judgment which may confirm a negative expectation associated with their label, their performance is influenced by the threat of that stereotype (Steele, 2010). A highly supportive environment may decrease the negative effects of being labelled as ‘gifted’, although research shows that children whose mothers often used the term ‘gifted’ report relatively lower self-concept regarding their physical appearance and higher levels of anxiety related to their ability to concentrate and sustain their attention (Cornell, 1989), and their idea that they must not under-perform, because they would not meet the expectations of their environment may be one of the starting points of maladaptive perfectionism (Schuler, 2002).
- *Formative assessments:* Instead of summative assessments, rankings, summarizing the final scores and deciding whether one is ‘accepted or not’ into a talent support program, it is more appropriate to carry out formative-type assessments, examining strengths and weaknesses,

and instead of simple “selection” rather having a long-term goal to develop an individual support plan for each student.

- *Obsolescence of test content:* The content of ability test, as well as abilities themselves rely on past experiences and past research, which are not necessarily suitable for mapping talent potential for future challenges (Fuszek et al., 2014). Content of identification reflect on yesterday’s needs and ideas, although today’s education should prepare children for an unknown future, which means „to make the most out of ourselves on the assumption that doing so will make us as flexible and productive as possible” (Robinson, 2009, p. 20), so success is rather guaranteed by responding and adapting challenges than fixed abilities and previous knowledge. So traditionally measured abilities may not be enough or necessary in the next decade the same way as they were necessary for the past years, and the content of identification should continuously be rethought.
- *Unpredictability of talent development due to the interaction of ability and practice:* Research has shown (Ericsson & Lehmann, 1996; Feltovich, Prietula, & Ericsson, 2006) that a person with an outstanding performance and excellence in a given domain is less likely to show the same performance in another field, too. These studies also suggest that excellence is the outcome of abilities and deliberate practice, so the predictive power of ability tests are definitely limited. The DMGT (Differentiated Model of Giftedness and Talent) model by Gagné (2008) also implies that one cannot excel in a domain and become talented without outstanding natural abilities and first being gifted, although the reverse is not true: high natural abilities may remain just gifts and not be translated into talents, so abilities themselves will not necessarily result in excellence, as it is shown for example by underachievers. Because of their status as 'raw materials,' gifts represent „generic abilities that can be molded into somewhat divergent skills, depending on the field of activity adopted by a talentee. For example, manual dexterity, one of many natural physical abilities, can be molded into the particular skills of a pianist, a dentist, a typist, or a video-game player. Similarly, analytical reasoning, one of many cognitive natural abilities, can be molded into the scientific reasoning of a chemist, the game analysis of a chess player, or the strategic planning of an athlete” (p6). It means that information about one’s abilities provide only a limited knowledge about the talent developmental process that derives from a complex choreography between the causal components, „a choreography that is unique to each individual” (Gagné, 2008, p6).

Summarizing the pros and cons of identification it can be concluded that identification is useful and necessary in those cases, where the skill or ability we are looking for is (1) rather well-defined and specific and (2) at a relatively high level. If levels of abilities and giftedness are illustrated by a pyramid, where in the lower levels there are the mildly above average abilities (in a relatively large number) and in the higher levels there are the highly (1:1.000), exceptionally (1:10.000) or extremely (1:100.000) outstanding abilities in a gradually decreasing number, we may assert that ability assessment is more important if we are looking for higher-level abilities. The same is true for specificity: the more specific attribute we are looking for, the easier it is to define tools and measures for the given characteristics and the more important it may be to uncover them before being accepted to a program.



For example, it may be necessary to set up a strict selectional system when deciding about being admitted to a high-level master course in chello, while it is not necessary to carry out identification into a photo-class in an elementary school. And just to put it more complex, in some support programs (eg. public speech course) the criteria of being admitted can be defined on the basis of ‘needs’, so the lower level of a given skill may be a better indicator to be accepted.

PRINCIPLES OF TALENT IDENTIFICATION: GENERAL DIRECTIONS FOR ALL

If - after thinking over all the above questions - our answer is ‘yes’ to identification, the following principles should be applied when setting up a complex, institutional identificational system:

- When designing the specific methodology and concrete diagnostic methods of talent identification, three essential conditions need to be thought over: (1) *the theoretical model* chosen, (2) the *availability of resources* and (3) the *identificational goal* (Ziegler & Stöger, 2004). Of the three conditions, the identificational goal is particularly important for determining assessment methods, because this is what defines the basic direction and content of the measurements, and what types of and how much information is to be collected.
- It is important to *link assessment to pedagogical practice* and the support provided later. As identification is not an end in itself, measurements should primarily aim at providing information and a reference point to plan an appropriate educational environment.
- Talent search should apply a *strength-focused perspective*, looking for above-level and outstanding characteristics. In addition to the positive focus it has to do with the reliability of tests: outstanding performance in an ability test is definitely a sign of high-level skills, although weak performance may be due to many other conditions as well, like lack of motivation, deficits of attention, problems with reading or understanding the instructions. Consequently, an above-level test result may allow us to draw conclusions about a person’s outstanding abilities, whereas poor results do not necessarily warrant low-level abilities, only that the person did not perform well in the given test. Therefore it is advised to feedback only the high-level results, because lower achievement feedback may mislead the users.

- *Inclusiveness*, involving as many students as possible in the various programs should be a priority, therefore equal access to applicants with different backgrounds should be ensured. In practice it means that all students should be allowed to complete the various ability assessment tests, not only pre-selected ones, for example those recommended by their teachers. Additionally, the identification system should cover as many fields of abilities and interests as possible, it should be complex and versatile, and map student characteristics from as many aspects as possible. Flexibility and providing multiple entryways to the system is also crucial in the inclusive framework. A reasonable exception of the inclusivity framework can be a highly specific program with very well-defined purposes and the related special assessment tools.
- Identification must be *cheap and economic* concerning financial, material and human resources, and preferably not the most expensive part of a talent support program.
- Where a student group of a large size is being investigated, it is useful to design an *online measurement*. Within online measures, adaptive, IRT-based tests should be applied as they provide more reliable data than traditional paper-pencil test, and make the results of students of different ages and abilities comparable (Klein, Raven, & Fodor, 2019). Online data collection is economic from the human resources point of view, too, as psychologists save their valuable time to more demanding tasks and instead of correcting and scoring the answer sheets, they can focus on complex evaluation, discussing the results and planning an appropriate learning context for the student.
- In a well-functioning system there is a continuous *balancing between objective and subjective instruments, group and individual screening*, detailed, long and short, economical tests. Both have the advantages and the disadvantages, and focusing on any side may weaken the other. Whichever is chosen in a given situation, the other side is bound to be somewhat deficient. From this perspective there is no 'perfect' identification, it cannot be complex, detailed and short, economic at the same time.
- *Test results of a given test at a given time* do not allow us to draw general conclusions about the abilities and maximum performance of a student. Therefore it is recommended to conduct the assessment by using more instruments, several times, and to keep the identification process as flexible as possible.
- Instead of rating students according to one criteria and setting up a one-dimension sequence of test-scores, it is recommended to set up a more complex *individual profile* of strengths and weaknesses. With sophisticated statistical analysis individual profiles can be also compared and rated, and it provides a more complex angle for evaluation.
- A strict hierarchical identificational process, where assessments are built upon each other and one assessment serves as a prerequisite for the other, is usually not advised. It is unfortunate to assign a measure as a precondition to another and only those passing the first filter can access the next step, because it would practically mean neglecting the advantages of complexity and the wide variety of tools. If *all data are available on all persons*, there is a better chance for effective selection. Hierarchical measurement is recommended only if there are lots of applicants to a limited number of places in a program (eg, the Hungarian Templeton Program), and there is a well-structured system of the necessary skills and abilities (Péter-Szarka et al., 2017).
- In most cases, teacher's evaluation or recommendations (as a relatively cheap method) are the first step in identification, and the preselected students can go for to the more expensive types of assessment, like psychological testing. This practice excludes the possibility of identifying those with not 'teacher-friendly' behaviour, and also eliminates identifying

underachievers. It is also shown that in nearly all conditions identification systems that require a teacher nomination before testing result in a large proportion (around 60%) of gifted students being missed (McBee, Peters, & Miller, 2016). So *teachers' recommendation* as a first filter should be avoided, unless we are especially looking for well-adapting high-achievers.

- Talent identification programs should take place on a *voluntary basis*. If schools or organizations do not find it useful or necessary, forcing them conducting it would just result in a negative attitude towards talent support. The price is higher than the result we gain.
- The various results of any assessment methods provide only data to evaluate, but the ultimate *decisions about identification are taken by people*. The various measuring protocols and algorithms help avoid random decisions, but the responsibility is on the decision-makers of a program.
- The decision process about being accepted into a program or not should be led by the principle of *'goodness of fit'*. As talent is so colourful, we cannot set up a general-ideal outcome for every identificational process, but to match identification criteria to local expectations and needs.
- It is recommended that the focus of the assessment may be expanded towards *formative assessment* from summative evaluations. A significant emphasis may be given to formative evaluation and diagnostics, when personalised testing has the aim to promote learning and to set up an appropriate learning context, so instead of the 'assessment of learning' 'assessment for learning' should be carried out.

A WAY TO INDIVIDUALIZED IDENTIFICATIONAL SYSTEMS: QUESTIONS YOU NEED TO ANSWER BEFORE START

As we saw, there is no a perfect and generally valid identificational system, as it must always consider the local needs, goals and resources. An optimal system can only be established if all the specific, individual factors are mapped and arranged in a coherent way. So after going through the general principles of identification, institutions must think over how they can apply these principles to their own, special circumstances. They must definitely think over the main strategic issues and answer the following questions to design an appropriate talent assessment method.

- What is the purpose of the assessment? What are the results used for and what is planned to do with the identified ones? The more we know about the goal of identification, the more precisely we can identify students matching it.
- What talent fields or what abilities do you want to explore? The more precisely the abilities and talent fields are defined, the more precisely they can be measured. Although, the right balance should be struck between measuring specific and well-definable fields and securing adequate complexity and a differentiated approach.
- What theoretical framework is used? Is there a talent model that serves as a starting point for the program? Most of the time it is worth choosing a conceptual framework to provide coherence for the whole program.
- How old are the students who are to be assessed? Where are they in the talent development process? Should we measure potential or already productivity?

- Are the measured characteristics equally important or they should be weighted differently during the evaluation process? Are all the test-scores used as criteria for identification, or some of them are just used as a source of information about strengths and weaknesses?
- Will the system be adequate for assessing heterogeneous student populations and for involving mostly underrepresented social groups in the talent-nurturing program (Renzulli, Gaesser, 2015)?
- How will the “identified” students be called during the program? It may be advised (1) to provide a strength-centred, profiling-type feedback with a differentiated and personalised characterisation or (2) to label the program instead of labelling the students themselves.
- What defines the evaluation criteria of the numerous test results? Is it defined by the number of persons that can be accepted to the program, or is there a cut-off score in test results, above which everyone is included? The answer for this question determines the basic algorithm of data evaluation.
- To what extent will the system be economical and sustainable in the long run in terms of personnel and material conditions, concerning both individual and group testing?
- How many testing tasks can the school professionals and school psychologists undertake for the purpose of talent identification? What human resources are available to carry out the assessments?
- How will the results be disseminated? Are the results available for teachers, parents, students or for all? Who are entitled to get to know the individual/class/school results? What access rights should the form master, the subject teachers, parents, students be given?
- Is the system flexible enough to map various talent fields and to provide alternative “entry” pathways to applicants? Can the test-taking process be repeated, or how regularly is it open?
- To what extent does the system match the educational legislation, resolutions and local protocols?
- How does the system contribute to the satisfaction of parents and students?

These questions must be answered by each institution before setting up a complex identificational system, and in view of the answers a talent identification expert, who is familiar with psychological assessment methodology, will be able to provide sound advice on what field should be assessed by what tools and how the output data should be analysed and used afterwards. Sometimes it is a good solution not to use formal talent identification at all, because self-selection – indicating interest and motivation – may be enough. In other, more specialized programs psychological measurement is necessary and unavoidable, and the main task is to find the most economic, but still effective way of identifying those who best fit into the given program. However, psychological measures and getting information about students can be always useful if used by caring educators with the aim of setting up an individual learning context, as it enhances individuals strengths and improves life quality for all, keeping in mind that “we need to evolve a new appreciation of the importance of nurturing human talent along with an understanding of how talent expresses itself differently in every individual. We need to create environments – in our schools, in our workplaces, and in our public offices – where every person is inspired to grow creatively” (Robinson, 2009, pxiii).

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