зіставленні з уявленнями щодо еталонних якостей скрипаля-виконавця. Другий етап – орієнтаційно-аналітичний – пов'язано з розвитком здатності майбутніх спеціалістів до зіставлення власних виконавських намірів та можливостей з авторсько-змістовими координатами розучуваних творів (порівняння концепцій «Я-виконавець» і «Я-композитор»), тобто здійснюється аналіз суб'єктів виконавської взаємодії (виконавець-твір). Третій етап – прогностично-трансформуючий – присвячується визначенню і реалізації програми корекції, модифікації, трансформації виконавських досягнень відповідно до визначеної виконавської проект-концепції скрипаля; активізації становлення персоналізовано-виконавського стилю студентів шляхом стимулювання їх до самовираження у виконавському мистецтві, спонукання до системно-перетворювальної концертно-виконавської діяльності. Четвертий етап, коректив-но-гармонізуючий, спрямовується на наповнення виконавського тезаурусу студентів-скрипалів новими ціннісно-значущими музичними образами, збагачення їх духовної сфери, розширення сфери інтелектуально-емоційних переживань мистецтва і на цій основі розвитку здатності до пошуку оригінальних художньо-технічних засобів інтерпретації музики.

Ключові слова: артистично-творчий рівень, особистісно-фахова самодіагностика, аксіологічно-виконавський аналіз, прогностично-трансформуючий етап, ціннісно-креативна особистісно-фахова система виконавської культури скрипаля.

Submitted on March, 23, 2017

UDC: 371.212.3:159.928.22(045)
DOI: https://doi.org/10.24195/2414-4665-2017-4-16

Ivan Voloshchuk,
Doctor of pedagogy, associate professor,
Yaroslav Rudyk,
PhD (Candidate of Pedagogical Sciences), associate professor,
Department of Teaching Methods and Educational Institutions Management,
Olena Soloviova,
senior lecturer, Department Romance and Germanic Languages and Translation, degree-seeking student,
The National University of Life and Environmental Sciences of Ukraine,
15, Heroiv Oborony Str., Kyiv, Ukraine

MEASUREMENT OF GIFTEDNESS: ANNOYING FAILURES AND GREAT DISCOVERIES

The article presents the results of the research on intelligence, giftedness and its measurement which demonstrate strong and weak points of solving the problem of measuring gifted individuals. Intelligence comes out as a mental construct of intelligent behaviour and giftedness is given as its attribute. Intelligent behaviour is structurally presented; this serves a theoretical basis for the measurement of giftedness which is based on the suggested principles. The issue of development of giftedness is brought to the open and social and pedagogical conditions are considered to be necessary to change structural components of giftedness quantitatively.

Keywords: *instinctive behaviour, reactive behaviour, intelligent behaviour, intelligence, giftedness, measurement of giftedness.*

Introduction

The fact that people differ in their abilities (including academic) has been known since early times. But at the times when an individual form of learning dominated in education because only some people could study, the problem of differentiating people on the basis of their abilities (first of all in education) was not so urgent. People from social corps d'elite mostly studied as they were mainly prepared to learning genetically. Cases when people showed their inability to study were considered to be a deviancy as well as those cases when people from masses proved to be academically strong and rose to eminence in cognitive and creative activities.

The issue of differentiating people on the basis of their abilities became relevant after broad masses got the opportunity to learn and collective forms of learning were incorporated into an academic process. Thus it was necessary to identify those who turned out to be unable to master academic curriculum properly. This is not about those who have grave mental disorders but about those who are retarded at the present period of time.

A positive solution of this pragmatic problem encourages researchers (at present primarily psychologists, not pedagogues) to formulate a new issue – whether it is possible in the same way to identify those who outgrow their peers mentally at the present period of time, not in those characteristic features which are responsible for

academic progress because separating this group of individuals did not provoke any obstacles (they were diametrically opposite to those who received the lowest scores according to the diagnostic results), but in more global features which are among the others responsible for academic progress as well.

Since learning is closely connected with cognitive process it is natural to identify a global psychic construct together with intelligence. So, those individuals who make better progress than their peers in learning academic material outgrow their peers mentally. We should note here that this firm conclusion was later specified. In particular, it was clarified that the individuals who keep ahead of the others intellectually can lag behind in learning. On the other hand, the individuals who keep ahead of the others must not necessarily outgrow intellectually.

Why it is so, is a question. That is why we emphasize that the problem to look into intelligence is being risen and it promises more benefits in comparison with testing academic progress or psychic phenomena responsible for this progress. A practical need in testing intelligence pushes a theoretical problem to identify its essence.

Summarizing research data on identifying intelligence essence we can state that theoretical approaches identify intelligence as one ability or take a number of intellectual abilities as a basis, that is consider intelligence from a psychic point of view, highlight a cognitive activity or include a creative component into intelligence; define intelligence as a unification and thus assume different types of intelligence.

The systematic researches of intelligence essence start with Ch. Spearman's statistic method, the author succeeded in differentiating between general and specific intelligence [1].

An alternative to the outcomes made by Ch. Spearman was L. Thurstone's idea that intellectual activity has seven basic constructs such as verbal understanding, vocal fluency, memory, thinking and the speed of perception [2].

R. Cattell and his supporters try to connect Ch. Spearman's and L. Thurstone's ideas to save the idea of general intelligence, thus, accentuating general, fluent and crystallized intelligence as well as basic components of intelligence such as visual abilities, mnemic abilities and performance abilities [3].

However, qualitative differences are so bright that H. Gardner defines the following types of intelligence: linguistic, logic and mathematical, spatial, interpersonal, intrapersonal, musical, kinesthetic and natural [4].

We should mention that the idea of different types of intelligence is supported due to some circumstances and these supporters enlarge this list. As a result there have appeared a practical intelligence and an emotional one. All this proves that a new type of intelligence can as well appear in science.

At the same time the supporters of the idea of general and specific intelligence confirm that general intelligence is present in four out of H. Gardner's eight intelligence types; a high rate of *g* in tests that label linguistic, logic and mathematical, spatial, natural, interpersonal domains and the low rate of other domains, especially a kinesthetic one [4].

Altogether researchers discuss intellectual and creative abilities of individuals. As well as in many other cases we can differentiate between two opposite approaches. The scientists supporting the first approach believe that even if intellectual and creative abilities are connected, this connection is very slight. The others think that creative and intellectual abilities line up, moreover a creative component is inherent a cognitive activity and a creative activity itself is based on a cognitive activity.

Here we should state that accumulated empirical data, on the one hand, indicate the connection between a cognitive and a creative activity, and on the other hand, facilitate to conclude that these constructs are relatively independent. Thus, we have found that ten characteristics of a creative potential correlate with ten characteristics of intelligence (in average with $r = 0,09$), originality and the thinking fluency predict intellectual abilities ($r = 0,20$), altogether intellectual and creative potential positively correlate except from high IQ, though creativity and intelligence are different in neurologic activity which was demonstrated by examinees during open and close tests. The analysis of empirical outcomes helped us to conclude that the key difference between intellectual and creative activity is in the nature of intention, either limited or metempirical.

The paper aims to provide evidence that intelligence comes out as a mental construct of intelligent behaviour and giftedness is given as its attribute.

Discussion

Other researchers try to connect intellectual abilities with other psychic characteristics. Having analyzed scientific works on this issue we see that intellectual abilities positively correlate with the speed of nerve process, emotional state, memory, thinking, etc. Moreover, the speed of processing information together with personal characteristic features impact the results of testing intelligence due to predicted additive influence of information process speed on it and quadratic effect of interaction between agitation and personal features; the progress increases when agitation goes up but only to some extent, when agitation increases very much the progress falls; all in all these correlations reflect individual differences in access to specific sets of short-term memory.

The connection of intellectual abilities with other psychic features have a practical value as they serve as a basis for revised methodologies of recording intellectual abilities. Classical methodologies of testing intelligence are also being permanently changed, beginning with A. Binet and T. Simon tests [5], and going through D. Wechsler scales. They need modifying. And the focus must be not on result but on process, dynamic measurement, stating the purpose of utilizing recorded tasks and taking into account a bigger number of components of cognitive abilities which are tested [6].

The analysis of intelligence research results provokes more questions than gives answers to those questions which were stated before analyzing scientific works.

First of all the attempts to identify the essence of intelligence have one drawback – they do not give the purpose of what psychic phenomena must be labeled by such an integration as intelligence. If to take into account that the behavior of live objects is based on instinct and intellectual principles then it is clear that everything that provides intellectual or reasonable behavior must be called intelligence.

In order to utilize this approach we should define wise behavior. The key to the answer lies in the differences between instinctive and reasonable behavior.

Instinctive behavior is a reaction of the organism to a stimulus. Such actions are focused on the self-preservation of an organism that is the provision of conditions necessary for life. A characteristic feature of instinctive behavior is its sporadicalness: each time the organism reacts to the same stimulus as if this influence is for the first time each time. Though live organisms (not intellectual ones) are characterized by some congenital reflexes; moreover, if the same stimulus is repeated live organisms develop association reflexes. Though this reflex response on the stimulus is unaware and what is more, is not abstractly summarized, that is why in the same situations it is never predicted.

Another point is reasonable behavior. A reasonable being that has a reasonable behavior accumulates life experience, in other words the organism responds to stimuli which had positive outcomes. Moreover, this positive experience is accumulated in memory both in specific and abstractly generalized form. In case with a human being these stimuli can be factors of social and natural actions which are direct or abstract in the form of a problem situation.

Another difference between reasonable behavior and instinctive or reflexive one is formulating the aim to achieve which physical and intellectual attempts are focused on.

In case of reasonable behavior to reach the goal is to analyze the situation in which a human being is. If to formulate the aim in the abstract form this analysis is actually the analysis of given data in a task which must be done. As a result one of the modified ways of reaching the aim is selected and a conclusion is made about the absence of the way of reaching the aim of solving a problem among the past experiences.

In the case, when the intuition prompts that the selected way will reach the aim, an individual approaches the finish, step by step, by extrapolating the motion focus and comparing it with the ultimate goal.

If there are no ways of reaching the ultimate goal of the past experience or while reaching it or the selected way proves to be inappropriate an individual reconsiders the data of accumulated experiences to separate the content and the form and to construct the way of solving the risen problem.

Usually the beings with reasonable behavior are called to have intelligence. By the way, some of the listed behaviors or maybe all of them are inherent in animals.

We would quit considering intelligence if it were not for three moments.

First, intelligence from the point of view of reasonable behavior is somewhat discussed conventionally and schematically, it cannot be separated from other domains of psychic activity, on the background of which this behavior is performed.

Second, there are a lot of examples in which human and animal behavior acts are inclined to work intellectually but they are not because they have more reflexive and not intellectual components.

And finally, analyzing the given examples of reasonable behavior we can make a conclusion that almost all of them do not predict utilizing life experience in static unchanged form and are connected with its modification, building elements and the construct which are in memory. And it can be defined as a creative activity. In other words, reasonable behavior without creating something new is impossible. Thus, intelligence is an integration of psychic features which organically combine reproductive and productive actions.

At the same time it is unacceptable to simplify this integration only with psychic features. An exceptionable role is given to reasonable behavior of psychic states. First of all, emotions play a great role. Emotions as a catalyst of physical and psychic energy enhance the efficiency of reasonable behavior. Without positive emotions it is difficult to start anything and to reach the aim and to solve a problem. They are necessary to counteract the accumulation of negative emotions, uncertainty which is crucially necessary to renew physical and psychic states.

Feelings also affect the effectiveness of reasonable behavior. Feelings colour this behavior. They define the nature of the aim, urge to constantly move forward.

The indisputable fact is the level (quality) of development of psychic process which takes part in achieving the ultimate goal.

All this is the ground to be suspicious about different types of intelligence, as H. Gardner suggests, that is to speak about a practical or emotional intelligence and so forth. To confirm this point of view it is necessary to recall what caused the appearance of these terms. Here two factors appeal to us.

Reasonable behavior is the realization of the past life experience. It is clear that if an individual has studied some science realm so he/she is expected to achieve progress but it does not mean that in everyday life which is not connected with professional activity he/she will also have progress. Similarly, we can say about some academic domains such as humanities and hard sciences and so forth. But if an individual is successful in one domain and is not competent in other ones it gives the grounds for doubting in the level of the development of his/her intelligence.

The development of all psychic phenomena which take part in intellectual activity impacts reasonable behavior. But is it possible to speak about different types of intelligence on the basis of differentiating individuals' interests?

We should say that the neglect of life experience and preference of traits, interests supported by a social pressure of an egalitarian number of psychologists, pedagogues and sociologists led to existing confusion in the study of intelligence. We cannot speak about types of intelligence on the basis of individual ability to understand emotions, esthetic feeling, etc.

As a result, these two factors encourage to differentiate between academic and practical, logic and mathematical and linguistic, emotional and esthetic intelligence, etc.

But reasonable behavior is universal in all domains of activity, types of problems and so on.

Intelligence as an integration of psychic processes, features and individuals' states which provide their reasonable behavior cannot be divided into types and kinds because intelligence is an organic combination of psychic processes, features and individuals' states and other psychic components which provide the effectiveness of reasonable behavior.

It should be also noted that reasonable behavior is also considered at the productive and reproductive levels. Thus, the accumulation of life experience predicts the separation of form and content in the cognition; a constructive coloring of the content in different shape, incorporating the separated content element in knowledge, restructuring the existing system including the separated content element, the search for possible absent components in the system which makes it conscientiously open to next complementing, restructuring and systemizing related systems in the framework of meta system.

A hypothetical presentation of intelligence, apart from theoretical significance is characterized by some practical value that is on the basis of existing theoretical assumption to measure intelligence; in particular, intellectual tests are developed. A significant positive correlation between the results of intelligence testing and academic progress made us believe that the measured construct is the phenomenon which is the foundation for intellectual activity of an individual that is intelligence. In fact, the given empirical fact is not enough for such specific conclusions.

On the other hand, there is another problem. During the process of intelligence testing it became clear that some individuals do not only solve tasks set for their age group but solve a number of problems set for another age group (for older people). This fact is undisputable evidence that they outgrow their peers intellectually. It was logical to join such individuals in one group. It was done and what is more they were called gifted.

The described theoretical approach is difficult to carry out in practice as an individual can solve some tasks set for another age group but at the same time he/she cannot do some tasks set for his/her own age group and sometimes cannot even solve problems set for younger people. That is why a static approach plays an important role here. Representative groups for each age (year by year) are selected, tests for each age group are tried out and a new test is formed where there are questions for the given age group and there are questions for older individuals. A new test is tested on a representative sample, an average meaning is calculated and the received parameter is considered to be the right level of intelligence for the individuals of the present age group. A standard abnormality is also calculated according to the results of representative sample. The indicators which show the growth are high than norms. The individuals who have these indicators are called gifted. Accordingly we can speak about specifically gifted and deeply gifted individuals considering critically the indicators of two and three standard deviations.

We claim that this approach is rather conventional as those individuals whose intelligence test scores are in a boundary zone between leveling points show no qualitative changes.

It should be noted that the described static approach has not been practically proved to be valuable since it appeared. There were some attempts to call gifted individuals (without theoretical statement) who are in the upper one percent of systemized parameters of test scores. The developers of academic programs for gifted individuals use vague criteria or focus on the number of individuals who can master these programs on the basis of financial and organizational opportunities.

It is necessary to take apart from this utilitarian view and analyze the one which has more psychological issues in its theoretical background. Intelligence test based on task fulfillment is built on the recording skills existing at a certain time which are formed on the basis of relevant knowledge and which in its turn is the result of necessary abilities. But that is not enough. Motives, interests and environment are also important for the ultimate successful outcome. Thus, we can make a conclusion that this theoretical approach makes it impossible to objectively test intelligence and on this basis to separate a group of gifted individuals. At the same time giftedness according to this approach (and it is almost the one that is used) is defined as a fact of possessing at the moment of testing some (statistically calculated) knowledge and abilities.

We must say that the term "giftedness" which was introduced into the science empirically is sometimes defined in the wrong way. We mean a number of different definitions of this notion which are almost not connected with empirical method of testing or identifying. Among this pseudo-scientific polyphony one can detect some opinions. For example, giftedness is connected with getting a big number of skills at birth which guarantees the diversity of an individual as a grown. On the other hand, giftedness is considered to be a really high level of abilities based on the abilities obtained at birth. All other definitions balance between these two definitions. Though, sometimes we can observe some tricks: extreme philanthropists believe that all psychic normal individuals are

gifted. More rational ones think that giftedness in children can be developed. Taking into account giftedness as the state of development of knowledge and abilities we can conclude that it is scientifically incorrect because one can develop attributes which at the time identify this state but not the state itself.

Fragmental measurement of intelligence, the imbalance between testing real progress of individuals which causes social and political consequences force the researchers to sin against scientific rigorousness and accuracy and speak about different types of giftedness. We cannot count all as almost each publication of a starting investigator contains a new type of giftedness. If this process is not stopped, then there is a perspective that the number of types of giftedness will equal with the number of items in a classification of occupations. In one of the cases the term "*giftedness*" is attributed with *intellectual*, thus we receive *intellectual giftedness*. Partly we can agree as giftedness is truly connected with intelligence.

But there are contradictions in this approach. Even if to use the concept of multiple intelligence (in fact agreeing with some of its types) then all types of giftedness which are connected with eight types of intelligence are intellectual giftedness. In practice it is neglected.

Other types of giftedness are recognized which go far beyond the framework of multiple intelligence, for example, educational and so on. The disadvantage of this approach is the shift from obtained abilities at birth to specific ones. It contradicts Gagne's concept according to which giftedness and talent are separated [7]. The researcher associates giftedness with those psychic attributes with which an individual is born and which are practically not influenced by external factors. Talent is associated with the features which can be changed and developed under the influence of external factors.

To proceed we must make some excursus. The point is that theoretically it is possible to separate some psychic constructs which deserve to have their own names, in other words their generalization into a notion. To these constructs we can refer the complex of potentials which an individual obtains at birth; the range of these potentials; universal potentials (which are the basis of abilities responsible for all psychic activities, specific potentials (which are the basis of potential responsible for specific types of psychic activity), due to criteria (at least statistically interpreted) level of potential development; prognostic recorded level of potential development. This list can be continued but these items are enough to comprehend this fringe problem. The two terms which became widely used due to psychological and social factors and which are used historically are "giftedness" and "talent". Thus, a pure pragmatic (not scientific) issue appears which of the two listed constructs can be called giftedness.

Why pragmatic? From the practical point of view it is not enough to say that giftedness is, for example, the complex of universal potentials, obtained by an individual at birth. Any concept loses everyday coloring if its definition contains a clear or hidden hint on the method of calculating its quantitative measure or qualitative length. But it is the only criterion of a productive definition in our domain. Under the term "giftedness" many people understand (it is a pragmatic demand of a society) not only qualitative and quantitative state of a selected psychic construct but its prognostic value. In other words, defining giftedness it is necessary to find the phenomenon which under favorable external conditions guarantees an individual's significant progress economically or spiritually.

As a result a psychic concept partly loses its pure scientific meaning, being dissolved in a social dimension. And here again the problems of applied nature rise. Do we record the presence of giftedness in order to implement differentiated learning? Or is it better to think about future progress of these individuals? And what if to combine the first and the second? Without any doubt, the list of pragmatic aims at which the definition of giftedness focuses can be enlarged.

Which pragmatic aim to prefer in such a case? There are cases when different aims are brought out to open. In this case we deal with utilitarian definitions which are workable and are formulated to select students for some academic programs. At the same time there are cases when more remote but more global aims are set, for example, giftedness is the level of potential development which is necessary for making some significant creative progress in a grown up life.

Thus, we have come to a three-circuit definition of giftedness suggested by G. Renzulli as abilities higher than average, agitation (that is the desire to know, to solve a problem, etc.) and according creative potential [8]. A characteristic feature of this definition is that it is focused on an individual's progress in a grown up life. Moreover, it is connected with creative potential that had been neglected by this time. This neglect is the result of theoretical guesses and even empirical researches (the veracity of which is doubtful) that intellectual and creative activities are independent phenomena. This scientific confusion can be explained by the fact that creativity is defined as artistic by mistake; neglecting the fact that each elementary process of cognition is the process of constructing something new, and it is a creative activity. And at last, giftedness which is the indicator of quality of processes, features and states of an individual which are responsible for intellectual activity is determined by some psychic indicators (here agitation, purposefulness, perseverance, etc.).

If to look at giftedness in a larger context one can claim that it is an attribute of intellectual behavior of an individual.

The mentioned above algorithm of intellectual behavior is universal (in the broad meaning) for solving any theoretical or practical task in any domain of a person's activity. This complex of intellectual components together with intellect managing all, without any exception, psychic and physical actions relieves from the necessity to speak about general and intellectual giftedness. Thus, the term "giftedness" can be used as a general notion.

The idea of intellectual behavior as an attribute of giftedness was born as a result of generalizing academic and professional activity of individuals. If an individual learns and solves problems as a result of intelligent behavior, then he/she is expected to achieve significant progress in a professional activity. Many examples can be given to illustrate that individuals demonstrating high level of knowledge and ability of its practical use at school in their grown up life did not make any progress. And on the contrary, those who failed at school in their grown up life generated new products like genii. Why is it so? Because the former studied in the ordinary style cultivated by an educational system while the latter opposed the formal academic scholasticism and at the same time learned about the world in the style inherent to intelligent behavior.

What internal constructs identify an individual's intelligent behavior? These are phenomena of genetic nature but not psychological or physiological. We do not know what they look like and we might not know in the future. The question to what extent intelligence and determined style of intellectual behavior are congenital or required is open to us as we do not have enough scientific evidence to justify the conclusions. We will give an example to show that there are phenomena which can be taught but cannot be learnt. Let us suppose that this phenomenon is the style of an individual's reproductive and productive activity.

To take the mentioned above into account we conclude that giftedness is mainly genetically determined intellectual potential which estimates an individual's intellectual behavior which is represented by the styles of his/her reproductive and productive activity.

And yet what is the difference between a gifted individual and an ordinary one? It is potential? No, it is not, because a mentally normal child has all human potentials at birth. Besides, it is impossible to identify them purely. Is it the level of ability development? Yes, it is. But it also depends on the factors of external impact which makes it impossible to use it in the process of dividing individuals into gifted and ordinary. So, we may possibly call intellect of a mental apparatus of an intellectual behavior and a determiner of the style of reproductive and productive activity. Most likely.

As giftedness was first associated with an individual's intellect that is why the first methods of its evaluating were the methods of measurement of intelligence, in particular, recording the level of the development of intellectual abilities. Later, when the concept of giftedness was expanded and many types of giftedness were introduced, methods of its measurement focused on testing other domains of mentality and did not change in their meaning. As it was before only knowledge and abilities which relevant potentials possess are tested.

So in order to trace the evolution of theoretical principles of measuring giftedness there is no need analyzing the tried and tested methods to measure the types of giftedness. It will be enough to concentrate on one of them. Paying tribute to historical sequence we will consider the methodological instruments of measuring intellectual giftedness which help to reveal intellectually gifted individuals. Here due to some reasons we treat intellectual giftedness and giftedness as synonyms.

As it was mentioned above, the evaluation of giftedness is first of all connected with testing intellectual potential. Intellectual potential which is the basis for intellectual abilities can, of course, be tested using problems, the solution of which demands their work. Choosing one fundamental thesis the developers of intellectual abilities tests aim to construct a universal and appropriate instrument.

Flexibility requires the selection of the tasks which can be suggested for people of the same age, who originate from different cultural and social environments. Convenience demands the simplicity of using and processing the results of testing.

To make tasks flexible they are selected for participants of a representative sample to be easily solved. After the tasks check they can be suggested in different cultural and social environments. As a representative sample (even an ideal one) is formed within one country then the problem of its utilization in other countries is up-to-date. The results of testing these tools in other countries (with other educational systems) are not positive.

The result of solving the problem of convenience is more positive. The thing is that in the simplest instrument all tasks are given with a set of answers (one is correct and the others are not). As all respondents have the same set of possible answers, then it is easier to define correctly completed tasks. At the same time this simplicity is associated with the possibility to guess the correct answer. To reduce the chance of random selection of the correct answer, the number of options is increased. Although, there are some significant limitations. Empirically it was revealed that a maximum good option is the task with four answers. This is because respondents doing the task orally can keep in their memory not more that the mentioned number of options. Under these circumstances the possibility of random selection of a correct answer is *0,25*. To increase the probability of a correct answer various tactics are used but it does not increase the probability to *1*.

There is another disadvantage of the simplicity of a test connected with the choice of the right answer on the question. For those who conduct a test of intellectual abilities not only the positive result of solving a problem is important but the technique used by a respondent during this process. But it is impossible due to mentioned above circumstances.

Let us come back to the flexibility of tasks. First examinations mostly consisted of tests. That is why it was considered that if to find a theoretical background of a task, to adapt it to another language one can get an adapted tool of testing. But it was wrong. Because no matter how thorough these actions might be they confront the system of education, its historical tradition, learning content and process which are so strong that the total

refusal from text materials and replacing them with graphical do not help.

That is why one can make a conclusion about the limited possibilities of tools to test intellectual potential on the basis of recording intellectual skills. Despite the tools which are at best relevant in the country where they were developed are actively being developed by different scholars on somewhat different theoretical principles concerning the structure of intelligence and intellectual potential and are called intelligence tests and tests of intellectual potential. Among the most famous ones, we can mention Binet-Simon test, Wechsler test and Amthauer test.

Let us put their limited relevance to test intelligence of people of ethnic minorities and families of low economic status apart and speak about other negative aspects. First, there is a question: Do intelligence tests really test intelligence? The absence of a single theoretically proved and empirically checked principle of the structure of intelligence makes the idea of unambiguity of one answer impossible. A marked positive correlation of the results using different intellectual tests is not the evidence of fixing the construct which from pragmatic point of view can be called intelligence.

Moreover, the issue of the additive of results of testing of different structural components of intelligence is insuperable. It is neither theoretically nor empirically possible to calculate specific gravity of any of structural components of intelligence on the whole. Despite this fact, parameters are "successfully" added, the consequence of which is operating the indicator which is called the coefficient of intelligence and it is graphically presented as *IQ*.

On the other hand, developers of such tests do not try to distance themselves when selecting tasks, moreover, they are not able to get rid of the impact of the learning consequences on the results of tests.

Good reasons that a respondent will make all efforts to summon up his/her intelligence are also absent as it happens in some cases when his/her intellectual activity is motivated by practical goals.

One cannot ignore the fact that the time given to complete the tasks of intellectual tests is limited. We cannot doubt that the level of intelligence is more or less determined by the fluency of neuronal processes. But can we make this parameter and the correctness of tasks completed equal? As a result, the comparison of intelligence of two individuals, one of whom thinks faster but less accurately and another one slower but more accurately is becoming scientifically incorrect.

Recording the level of his/her development is often used to measure giftedness and it enhances the negative effect. Because even if tests of intelligence really test it then the limited value *IQ* is confirmed neither theoretically nor practically which differentiates gifted individuals from ordinary ones; similarly there is not such a limited value to differentiate between ordinary individuals and those with low mentality. A statistic approach in order to solve this fundamental, theoretical or pragmatic problem has no longer been conventional. Because the scale of recording the level of intelligence is a continuous process that makes it impossible to interpret quantitative differences between neighboring points in terms of qualitative differences.

Let us use the meaning of the coefficient of intelligence *IQ = 130* as a criterion of giftedness. But what can we say then about individuals with *IQ = 140* and so forth? They are gifted, brightly gifted or simply gifted? The absence of qualitative criteria puts forward the statistic approach which divides the scale of intelligence with the help of the meaning of standard deviation, two standard deviations and three standard deviations. But it is a technical tool but not a theoretical or a practical statement.

Let us take for granted that gifted individuals are those who have *IQ = 130* and more. If now the result of a student *A* testing is *135* points. It means that he/she is gifted. In a year taking a similar testing which is for an older age group he/she will be able to have *125* points. How to interpret this result? That this student has lost his/her giftedness? And what to do if student *B* has *125* points in the first test and in the second test he/she has *135* points? Has this student joined the group of gifted? Moreover, what shall we say about student *C*, who has *135* and *145* accordingly? Has he/she developed his/her giftedness?

This approach of interpretation and assessing giftedness means that giftedness can be either obtained, developed and lost within certain time. Scientifically it is vague. And what do we have in real life? We expect from an individual who was selected into the group of gifted to progress but he/she does not satisfy these expectations. On the other hand, we limit the access of an individual who was put in the group of ordinary to programs for those from whom we expect great progress. Not to speak of the consequences of the wrong testing of mental retarded individuals. And all this because the knowledge is accumulated, skills are cultivated and potentials are developed. But it is not linear at different speed and at different times.

To take this fact into account, researchers try to use dynamic intellectual testing and testing of giftedness. Here the indicators of coefficient of intelligence within some period of time are averaged and on this ground the conclusion about giftedness is made. The problem is only partly solved. Knowledge, skills and abilities are being changed during lifetime. At first this process is more intensive, later it becomes less intensive. Though each individual has his/her own dynamics. Ideally the process of testing must be prolonged but testing is not aimed at certifying the existence or absence of giftedness in an individual after his/her death. A pragmatic thought demands to conduct testing as early as possible.

We will state here that a dynamic testing of intelligence is done according to the scheme 'learning – testing'. This approach has its pros and cons. One of them is academic potential.

As we can see, intelligence definition and intellectual tests which are developed on its basis and which are used to diagnose tests which are relatively relevant in predicting academic progress of individuals are not deprived of theoretical and methodological drawbacks. Knowing this, reasonable psychologists offer to add the data of testing which record the characteristic features of gifted children to the results of testing. It, in fact, generalizes but does fully solve the problem. First of all, because there is no accurate accordance between the coefficient of intelligence and a set of personal characteristic features of children.

To summarize everything mentioned it is necessary to reconsider the existing essence of intelligence, to reinterpret giftedness and methodological principles of its testing.

If to understand intelligence as a psychic apparatus of an individual's intellectual behavior and giftedness as its attribute, then the testing of giftedness predicts considering the following issues:

- the accumulation of life experience in one's memory;
- highlighting the form and the content in the element of cognition;
- formal constructive shaping of the highlighted content;
- incorporating of the content into the basic knowledge;
- restructuring the existing system including the content element;
- searching for absent components of the system that makes it open for further restructuring and further supplement;
- establishing connections between a restructured system and other systems of past experience;
- systematizing related systems within the metasystem.
- formulating the ultimate goal;
- the analysis of a situation from the point of view of the goal set;
- the choice of one of the options of achieving the ultimate goal in some revised form (as a conclusion of its absence among data of past experiences);
- an intuitive evaluation of the possibility of achieving the ultimate goal by the selected way;
- extra polar direction of focus;
- constant comparison of extra polar direction and the ultimate goal.

All this describes a reasonable way to consider reproductive and productive activity of an individual. It emphasizes the process during which the result has been got. Undoubtedly the result is not neglected but it becomes more specific but not general as it was before.

Everything proves that the result of assessing giftedness cannot just be the development of test "paper – pencil" (or even its computer version). The methodology of testing must be complex and must utilize different methods of recording, relevant components of intelligent behavior on stages of cognition and creative use of knowledge that is to obtain features of the methodology of testing focusing on the revealing the diagnosis of giftedness of a respondent and to be more accurate in detecting the style of his/her behavior which can or cannot be intelligent. Nothing more. Giftedness is inherent or it is not. And if it is not inherent, it is not a big problem because potential is inherent (it is socially important), but their combination does not provide a unique style (intelligent behavior) of reproductive and productive activity. And that is all. And these results do not make ordinary people second rate even when they are unconscientiously compared with those labeled gifted.

This approach of defining intelligence and giftedness has a number of positive consequences of theoretical and practical value.

For many centuries mankind has been searching for the answer to the question *How does a man detect problems and find solutions?* A man can have encyclopedic knowledge in a certain domain but is unable to produce something new. On the contrary, without having the necessary knowledge it is rather difficult to expect originality and practical value of a suggested solution of a detected problem. In other words, profound knowledge in a domain is a necessary but not sufficient condition for efficient creativity.

Much depends on the way the knowledge was obtained, what it is now at the moment of detecting a problem or its solving. It is important because if to follow a logic way of detecting a problem and its solving, as a rule, one can find nothing original. These cases usually result trivially, this result being a slight deviation. Another point is one's intuition to be used in the process of dealing with a problem. Due to intuition one can successfully combine separate facts, fragmental elements of knowledge, etc. In order all this to exist obtained knowledge must serve as an integrity and at the same time as a fragmental one. The integrity provides the birth of such a constituent and fragmentation gives some constructive ideas which will help to generate a new idea.

All we mentioned above conforms to the classical formulae of creativity according to which in order to produce something new it is necessary to forget something old though this something old was successfully obtained. Something old here guarantees the integrity of knowledge and at the same time this knowledge becomes the source of forming constructive elements of new knowledge.

Here we can think of one of the most masked educational secrets that is the style of learning which provides the formation of profound knowledge which can be forgotten at the moment of searching a new problem or its solution. It is a creative process. This style is, without any doubt, one the fundamental elements of intelligent behavior which if taken together form a psychic phenomenon which is usually labeled giftedness.

If to take into account that the apparatus of intelligent behavior is a complex psychic construct which we

call intelligence, then we can infer that a creative constituent of any activity of an individual is the subsystem of his/her intelligence. This inference is not trivial. In research works we can see contradictory evidence of correlation between intellectual and creative potential. The reason of this contraction is irrelevant interpretation of these terms and the absence of reasonable and rational methodologies of detection and measurement of these phenomena. The biggest part of intelligence test is to continue a numerical series, and the biggest part of creativity test is to give examples of unusual use of usual objects. The received parameters of intelligence and creativity will not correlate much. Yet, it does not prove that one must not have knowledge to create masterpieces in art, science or technology.

Conclusions

The analysis of researches of giftedness essence, its structure and content facilitate to infer that certain constituents can be influenced socially and educationally. At the same time, we cannot ignore the fact that certain structural components mostly stay unchanged after potentials are crystallized into abilities in early childhood when social and educational impact is largely limited.

Taking into account the fact that some structural components can be influenced socially and educationally that is in a better case they can be developed it is a mistake to claim that giftedness develops as well. Giftedness is an integral quality a man's mentality which is an attribute of his/her intelligent behavior. It either exits or is absent. Giftedness cannot be formed if it was not obtained at birth. It can neither be developed nor failed. Though structural components of giftedness that is intellectual behavior of an individual can be at different levels of development, can be enhanced or weakened within time under the influence of social and educations factors.

Accordingly, the system of education faces the challenge to create social and educational conditions in the environment for a gifted individual to strengthen his/her structural components.

Some hints on the existence of these conditions can be found in the results of researches on this issue. But it is just the beginning. We forward to complicated searches as nature masked (not hid) the treasure labeled giftedness.

REFERENCES

1. Spearman, C. (1904). General Intelligence, Objectively Determined and Measured. *The American Journal of Psychology, 15(2),* 201-292 [in English].

2. Thurstone, L. L. (1938). *Primary mental abilities.* Chicago: University of Chicago Press [in English].

3. Cattell, R. B. (1987). *Intelligence: Its structure, growth and action* (Vol. 35). Elsevier [in English].

4. Gardner, H. (2007). *Struktura razuma: teoriya mnozhestvennogo intellekta [Structure of intellect: theory of multiple intelligence]*. Moscow: OOO «YD Vyliams [in Russian].

5. Binet, A. (1900). Attention et adaptation [Attention and adaptation]. *L'année psychologique – The psychological year, 6(1),* 248-404 [in French].

6. Wechsler D. (1997). *Wechsler Adult Intelligence Scale* (3rd ed.). San Antonio, TX: Psychological Corporation [in English].

7. Snigireva, T. A. (2006). *Osnovy kvalitativnoy tekhnologii diagnostiki struktury znaniy obuchaemykh [Foundations of qualitative technology of the students' knowledge structure diagnostocs]*. Izhevsk: Ekspertiza [in Russian].

8. Renzulli, J. S. (1986). The three-ring conception of giftendness: A developmental model for creative productivity. In Sternberg, R. J., and Davidson, J. E. (Eds.), *Conceptions of Giftedness, Cambridge University Press, New York,* (pp. 332-357). [in English].

9. Amthauer, R., Brocke, B., Liepmann, D., & Beauducel, A. (1970). *Intelligenz-Struktur-Test 2000 [Intelligence-structure-test]*. R. Göttingen: Hogrefe [in German].

ЛІТЕРАТУРА

1. Spearman C. General Intelligence, Objectively Determined and Measured / Charles Spearman // The American Journal of Psychology. – 1904. – №15(2). – С. 201–292.

2. Thurstone L. L. Primary mental abilities / Louis Leon Thurstone. – Chicago: University of Chicago Press, 1938. – 121 с.

3. Cattell R. B. Intelligence: Its Structure, Growth and Action / Raymond Bernard Cattell., 1987. – 693 с.

4. Гарднер Г. Структура разума: теория множественного интеллекта / Говард Гарднер. – М.: ООО «И.Д. Вильямс», 2007. – 512 с.

5. Binet A. Attention et adaptation / A. Binet. // L'année psychologique. – 1900. – №6. – С. 248–404.

6. Wechsler D. Wechsler Adult Intelligence Scale (3rd ed.) / D. Wechsler. – San Antonio, TX: Psychological Corporation, 1997. – 426 с.

7. Снигирева Т. А. Основы квалитативной технологии диагностики структуры знаний обучаемых / Т. А. Снигирева. – Ижевск: Экспертиза, 2006. – 128 s.

8. Renzulli J. The three-ring conception of giftendness: A developmental model for creative productivity / Joseph Renzulli // Conceptions of Giftedness / Joseph Renzulli. – New York: Cambridge University Press, 1986. – С. 332–357.

9. Amthauer R. Intelligence Structure Test IST 2000 R / Rudolf Amthauer. – Göttingen: Hogrefe, 1970. – 643 с.

Іван Степанович Волощук,
доктор педагогічних наук, доцент,
Ярослав Михайлович Рудик,
кандидат педагогічних наук, доцент кафедри
методики навчання та управління навчальними закладами,
Олена Віталіївна Соловйова,
старший викладач кафедри романо-германських мов і перекладу, здобувач,
Національний університет біоресурсів і природокористування України,
вул. Героїв оборони, 15, м. Київ, Україна

ДІАГНОСТИКА ОБДАРОВАНОСТІ: ПРИКРІ ПРОМАХИ І ВЕЛИКІ ВІДКРИТТЯ

Проблема диференціації індивідів на основі їхніх здібностей набула актуальності у зв'язку з охопленням освітою широких мас і запровадженням колективних форм навчання. Зокрема, необхідно було щонайменше виявити тих, які на даному етапі виявилися неспроможними якісно засвоїти навчальні програми. Позитивний результат розв'язання цієї прагматичної проблеми спонукає дослідників сформулювати нову проблему: а чи не можна в аналогічний спосіб виявити тих індивідів, які на даному етапі випереджають своїх ровесників у психічному розвитку. Причому не за тими параметрами, які виключно відповідають за навчальні успіхи, а за більш глобальними характеристиками, які, крім усього іншого, відповідають і за академічні досягнення індивідів. Оскільки навчальна діяльність щільно пов'язана з пізнавальною, то доцільно глобальний психічний конструкт ототожнити з інтелектом. Отже, було зроблено висновок, ті індивіди, які випереджають своїх ровесників за здатністю опанувати навчальний матеріал, випереджають їх за розвитком інтелекту. Практична потреба обстеження інтелекту породжує теоретичну проблему з'ясування його суті. Узагальнюючи результати досліджень, присвячених з'ясуванню сутності інтелекту, можна констатувати, що використані для цього теоретичні підходи ототожнюють інтелект з однією здібністю або беруть за основу низку інтелектуальних здібностей, розглядають інтелект у здібнісній площині або виходять у глобальну сферу психічного, акцентують на пізнавальній діяльності або поміщають в інтелектуальний базис творчість, трактують інтелект як уніфікований конструкт або допускають різні типи інтелекту. Поміж тим, постає й інша проблема. У процесі тестових обстежень інтелекту стало очевидним, що окремі індивіди розв'язують не тільки завдання, орієнтовані на їхній хронологічний вік, а й низку завдань для старших осіб. Цей факт є незаперечним свідченням того, що вони на момент обстеження випереджають своїх ровесників за рівнем інтелекту. Логічним було у зв'язку з цим виокремити таких індивідів в окрему групу. Що і було зроблено. Більше того, їх назвали обдарованими. В одному з випадків до терміну *обдарованість* додається означення *інтелектуальна* і одержується на виході *інтелектуальна обдарованість*. З цим умовно можна погодитись, бо обдарованість дійсно пов'язана з інтелектом. Але і у цьому підході є суперечності. Бо навіть якщо послуговуватись концепцією множинного інтелекту (фактично погоджуючись з доцільністю виокремлення декількох його типів), то усі види обдарованості, пов'язані з вісьмома типами інтелекту, є інтелектуальною обдарованістю, що на практиці ігнорується. На основі аналізу досліджень, які стосуються суті обдарованості, її структури і змісту, можна зробити висновок про те, що окремі складові піддаються дії соціально-педагогічного впливу. Водночас не можна заперечувати і той факт, що певні структурні компоненти практично залишаються у незмінному стані після того, як відбувається кристалізація задатків у здібності, що має місце у ранньому дитячому віці, коли дія соціально-педагогічного фактору суттєво обмежена. Беручи до уваги той факт, що окремі структурні компоненти обдарованості піддаються дії соціально-педагогічного впливу, тобто, у кращому випадку, розвиваються з часом, помилково стверджувати, що розвивається при цьому обдарованість. Обдарованість – це інтегральна властивість психіки людини, що є атрибутом її розумної поведінки. І ця властивість є або її немає. Її не можна сформувати, якщо її не було при народженні, її не можна підняти на вищий чи опустити на нижчий рівень розвитку. Хоча при цьому структурні компоненти обдарованості, тобто розумної поведінки індивіда можуть перебувати на різних рівнях розвитку, посилюватися або послаблюватися з часом під дією соціально-педагогічних чинників. У зв'язку з цим перед системою освіти резонно поставлена задача створити такі соціально-педагогічні умови у тому середовищі, в якому перебуває обдарований індивід, щоб структурні складові його обдарованості не послаблювалися, а, навпаки, підсилювалися з часом.

Ключові слова: інстинктивна поведінка, рефлекторна поведінка, розумна поведінка, інтелект, обдарованість, діагностика обдарованості.

Submitted on March, 27, 2017