

Qualified Psychophysiological Instrument in the Recruitment System

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Abstract: The article touches upon the basic problems of modern recruitment: the imbalance of the needs and opportunities of a potential employee; imperfection of the recruitment system itself; limitations in the use of psychodiagnostic techniques. The main emphasis is on the general logic of development and modernization of recruitment through the introduction of psychophysiological parameters of diagnostics.

Keywords: recruitment, professional choice, professional identity, abilities, intellect, multiple intelligences, vibraimage, qualified instrument, psychophysiological parameters, diagnostics, psychological tests.

The need to clarify a career choice is observed during the entire active professional life of a person. Standards of professional success that are applied to employees in a particular area are interdisciplinary in nature, and involve diverse fields of professional self-fulfillment. Clarifying career choice is a need for both personal and sociocultural, dictated by the changing standards of modern society.

Professional identity is considered as a process of self-realization of a person in professional activities on the basis of the best use of their abilities and individual psychophysiological capabilities ([Borisova Ye. M., 1991](#)). Professional identity in the conditions of modern society and its demands means monitoring of the needs of both the society itself and the needs of the individual.

Often the essence of professional identity is defined as "the search and finding of a personal meaning in a chosen, mastered and already performed work activity, as well as the finding of meaning in the very process of self-determination" ([N.S. Pryazhnikov, 1996](#)). One of the key problems is the imbalance of the needs, capacities and professional orientation (inclinations) of an individual. The motivational component of choosing (or changing) professional activity does not always reflect real capacities for self-realization in an area.

In this regard, the problem of recruiting qualified personnel, which is the key to the success and prosperity of a company (enterprise), is no less acute. Another problem is the fashion for the profession and the corresponding attitude towards the representatives of these professions ([Udalova Ye.S., 2012](#)). The choice of a "fashionable profession" means a distortion of the motivational structure of personal priorities, the lack of diagnostic s of abilities for the chosen profession and the

formalization of both education and professional work. In other words, a valuable career staffer of such a person will not turn out. How to make sure that the right person is in the right place, is able and willing to take this place?

A qualified instrument in the recruitment system will help to solve this problem. Qualified recruiting will help radically change a person's life, helping him to find a dream job; will help to actually change the direction, and affect the success of the company with the help of one new first-class employee at the key position ([John Sullivan, 2016](#)).

A Qualified Instrument in the Recruitment System

In recent decades, the use of test methods has become widespread in the practice of assessing the personnel of Russian companies. It is obvious that the incorrect use of test methods leads to serious negative consequences for both people who perform these methods and for organizations that use their results in the process of developing and adopting management decisions that are different in scope and significance. The realization of the potential of specific test methods depends also on how correctly and appropriately they are applied, and errors in application devalue the results even in the case of the use of initially high-quality techniques ([Russian Standard for Personnel Testing, 2015](#). [Baturin N.A., Vuchetich Ye.V. et al.](#)).

Questionnaire Method in Recruitment

There is the problem of availability of test methods in the process of their operation. A correct interpretation of cumbersome multi-factor questionnaires is the prerogative of a narrow circle of specialists, who the employer first should find. The respondent's position is no less vulnerable. The abundance of questions, the protracted procedure of testing and interviewing does not always have a positive effect on the quality of the results. In order to avoid fatigue or the development of test anxiety in respondents, the developing complex or technique should be compact and should not require much time. For example, a well-known Minnesota multidisciplinary personality questionnaire ([Minnesota Multiphasic Personality Inventory, MMPI](#)) that meets all the basic criteria of test validity and reliability, includes 550 statements, and in the MMPI-2 version their number is 567. With regard to recruiting, the use of such a cumbersome tool is unacceptable. Mental exhaustion, especially in the situation of assessment, comes very quickly, which affects its quality.

A separate problem is the content characteristics of the techniques. The content distinguishes many types of tests: personal, intelligence, etc. During the interview, the emphasis is most often on questionnaires of interests (for example, [Strong-Campbell Interest Inventory, 1974](#)) and questionnaires of attitudes (for example, [Likert scale, Likert R., 1932](#)). The questionnaires of interests are designed to measure the structure of interests, and attitudes questionnaires - to measure the relative

orientation of the individual in a one-dimensional continuum of installations. The results of these questionnaires are compared with the CV and interview data.

Unfortunately, the problem of the correspondence of capacities to the declared interests and attitudes, remains unresolved. Such a task as passing the test for intelligence or the availability of capacities is not put in recruitment. One of the main reasons is the time limit and biased attitude of respondents to this category of tests.

And finally, *the degree of sincerity of respondents' answers* is also a problem for recruitment. We are talking about the so-called response attitudes: attitudes toward consent, denial, socially approved answers, etc. ([Burlachuk L.F., Morozov S.M., 2003](#)). These and other attitudes lead to the fact that the respondent gives false answers unwittingly (or willingly).

Method of Observation in Recruitment

Another method (besides testing) popular in recruitment is observation. Observation is a purposeful, specially organized and recorded perception of the object under observation. It provides a unique opportunity to identify the qualities of a person which are necessary for successful professional self-realization. Through observation involuntary reactions are revealed/ detected, verbal and non-verbal forms of behavior are recorded simultaneously, which *brings* the specialist *closer* to a holistic vision of the phenomenon. Classification of typical observation errors as a psychological diagnostic method is suggested by [Posokhova S.T., 2005](#).

We shall consider the typical errors of observation, which are manifested in the process of recruiting. These mistakes can be made even by an experienced *recruiter* (a specialist engaged in recruiting personnel) or a *coacher* (a consultant of the manager on creating a staff structure, personnel policy and crisis management strategies).

Types of Observation Errors:

1. Halo effect is characterized by the fact that the results of observation of a person's behavior in several situations (or only one, during the interview) are transferred to his predicted behavior in general. Around the person there is a "halo" of how he supposedly will manifest himself in subsequent life situations. The danger lies in the fact that the observer involuntarily transfers his own view of life to the observable signs.
2. The effect of the average trend - appears in the tendency to focus on the typical, the so-called average statistical behavior of a person, rather than on his individual characteristics. But it is atypical behavior that determines the uniqueness of the employee, his personal effectiveness in professional self-actualization. In the process of 1 or 2 interviews, it is not possible to predict atypical behavior of a person.

3. The effect of false consent is manifested in the acceptance by a specialist of attitudes (opinions) about the employee, on the basis of third-party feedbacks, of third-party opinion (for example, from colleagues or former employer). Not always such an opinion reflects real characteristics and the employee's potential (which was never disclosed).
4. The effect of the first impression - occurs mainly unconsciously, as a result of the transfer of the prevailing (mass) perception stereotype. So, for a fair-haired female, it is more difficult to prove her intellectual equality or advantage in relation to dark-haired representatives. At the same time, no expert openly admits this, believing that such prejudices are alien to him.

Quick and Accurate. Vibraimage Method

There is a need to create a diagnostic tool that is accessible and comfortable in operation both by an expert and any person interested in solving the problem of career choice at any stage of life. At the same time, the tool must meet all of the requirements of professional recruitment. It must combine the characteristics of capacities test and questionnaires of interests and attitudes, it must be quick to take and easy to interpret correctly, it must be protected from common errors of observation and attitudes on the part of the respondent.

Passing a questionnaire of no more than 24 questions *does not lead to mental exhaustion* of the subjects. Both the test procedure and the interpretation are automated. It is noteworthy that the psychophysiological assessment of the diagnostic criteria of professional suitability makes it possible to exclude *observation errors* (see above), since there is no need for an observer. The process of monitoring and data recording is fully automated. The technology of vibraimage allows obtaining multidimensional dependencies of the characteristics of the psychophysiological state (PPS) and recording the change in energy and the direction of this change. The change in the energy released from the initial state to another energy state is measured in kcal / min. At the same time, each transition has its emotional and psychophysiological meaning and is not affected by the *attitudes towards the answer* (see above) on the part of the respondent.

The content of the questionnaire incorporated in the program [VibraMI](#) meets the main criteria of the questionnaires of *interests and attitudes*, on the one hand, and the test of *abilities*, on the other hand. The content of the questions is directly related to the respondent's potential interests, and their formulation allows us to assess the orientation of the attitudes. The orientation of the attitudes can be traced in the change in the information and energy components of the response to the question.

The assessment of abilities is based on H. Gardner's concept of "multiple intelligences" ([Howard Gardner, Frames of Mind, 1983](#)). The author of the concept denies the approach in which intelligence is considered as an indivisible whole (the general intelligence) measured by classical IQ tests. H. Gardner's multiple intelligences are equivalent and independent of each other. Each of the 7 basic intelligences is a special way of interacting with the surrounding reality, a person's ability to solve problems or set new problems, valuable in this, or several cultures. H. Gardner's multiple intelligences can be considered as the availability of abilities in a particular area of learning. This model allows to

effectively predict the direction of professional activity in the most comfortable (from the point of view of self-realization) areas of learning and demonstration of existing skills.

The advantage of H. Gardner's "theory of multiple intelligences" is in its flexibility and the unlimited possibilities available for a person for self-realization. In this regard, H. Gardner speaks about the "infinity" of intelligences, about their integrity and ability to develop. In the VibraMI program, a supplemented and extended to 12 types version of H. Gardner's concept of multiple intelligences is presented, where the possibility for self-realization in a specific professional sphere is indicated. The results obtained in the process of such testing reflect both *interests and attitudes*, as well as the *abilities* to learn in specific areas of professional self-realization.

Psychophysiological approach and accessibility in its implementation on the basis of the program VibraMI allows us to solve most of the problems we examined quite effectively and quickly, without involving outside experts of a narrow profile. The method is based on the classical principles of psychophysiology and the latest computer technologies.

The VibraMI program of psychophysiological testing (PPT) of a person is based on the vibraimage technology. Vibraimage converts in real time a light video image of an object into an image formed by the accumulated interframe difference. This approach allows you to obtain information only about moving objects and amplify the signals of objects that make vibrations. The head of a person in a quasi-stationary state, constantly makes minor micromotions and movements (vibrations), and the parameters of these micro-displacements depend on the psycho-emotional and psychophysiological state of a person due to the vestibular-emotional reflex. Physical approach to the human being, as a complex cybernetic system, displays any change in the PPS of a person in the simplest Cartesian (rectangular) coordinate system. On the horizontal axis of the system, the value of energy released by a person at a given time is measured, in kcal / min, and along the vertical axis - the level of psychological comfort that can be reflected as an indicator of the information perfection '28 comfort) of the person being examined, measured in percentage, reflecting losses in information transmission of physiological systems (signal-to-noise ratio, or entropy-information).

Let us consider a specific example of VibraMI performance capabilities:

Anastasia, age 21, is finishing the Polytechnic University in the direction of "Mathematics and Mathematical Modeling". The work on the specialty she combines with the coaching and teaching activities of the sports section of the dance.

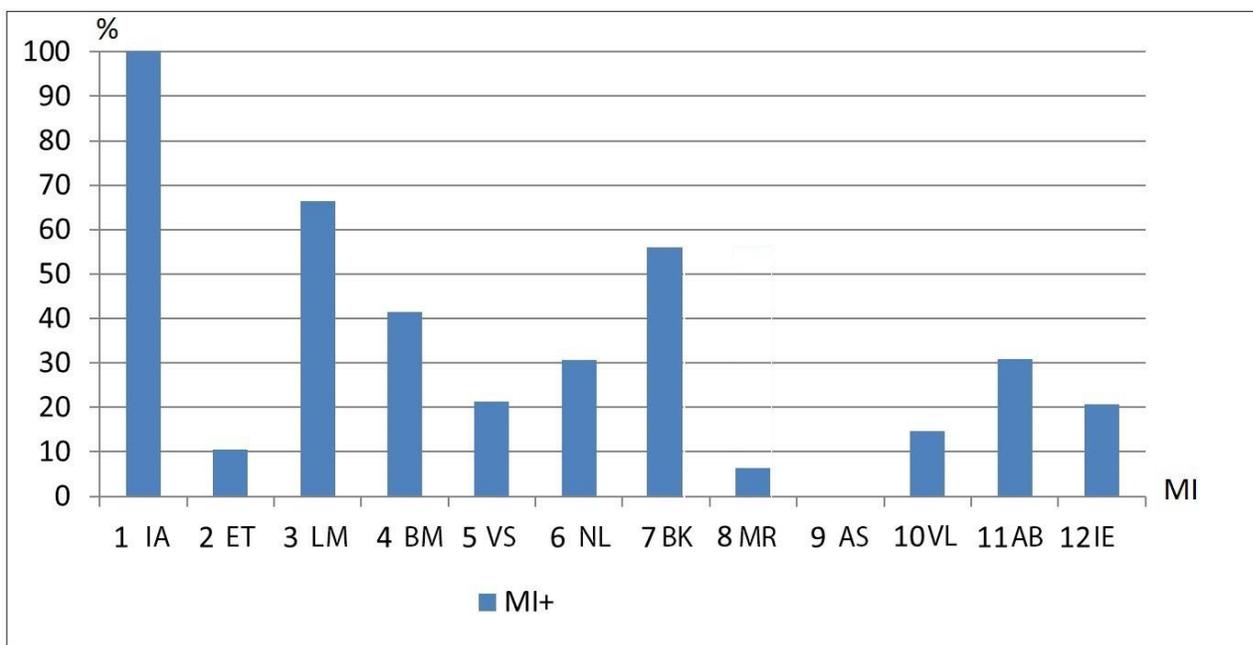


Figure 1. The results of diagnostics of the structure of intelligence in stressful conditions according to VibraMI.

Differential-stress approach means the situation of forced choice. The respondent is offered to rate 12 pairs of control and relevant questions, aimed at identifying the prevailing type of intelligence (intelligences). Testing in this mode is as close as possible to the classical lie detection and is psychologically less comfortable than standard psychological testing of areas of interest. However, it is this approach that allows you to test at the psychophysiological level the propensity to a certain type of profession and intelligence, since the most informative activity of a person in a stressful situation is when doing business.

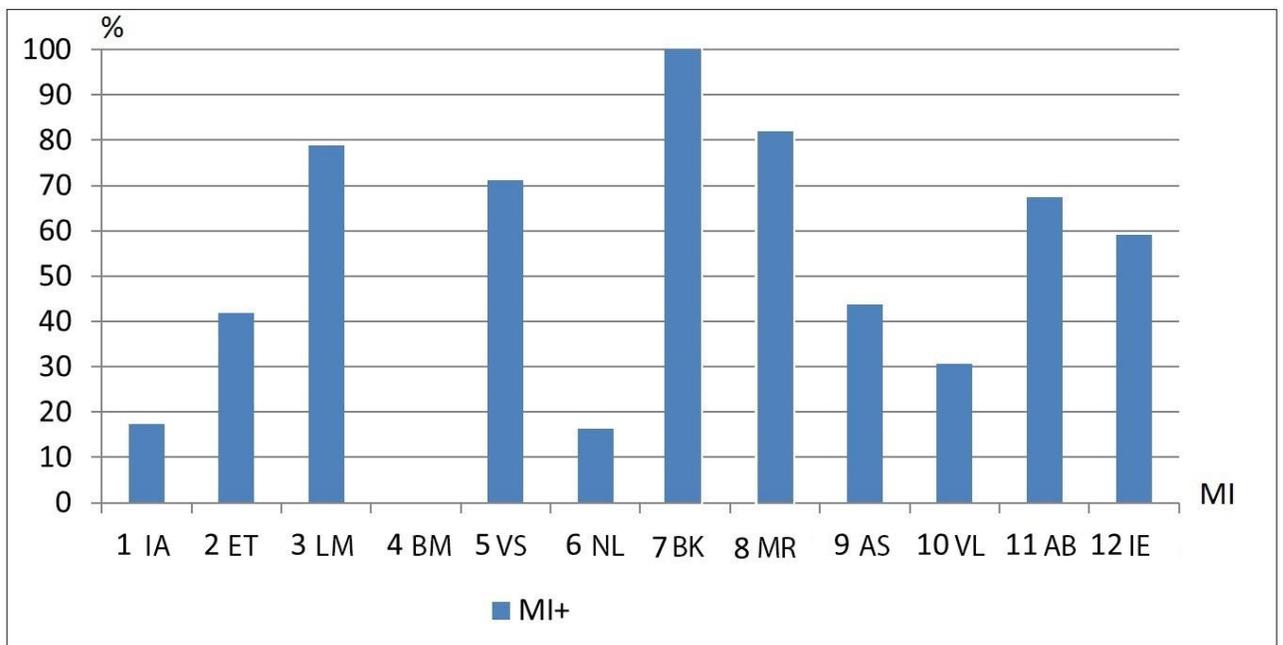


Figure 2. The results of diagnostics of the structure of intelligence in comfortable conditions according to VibraMI.

In contrast, the overall-comfortable approach is as close as possible to the classical psychological approach implemented when designing questionnaires. There is no situation of "forced choice" of two questions charged with the opposite information and psychological load. Therefore, the diagnostics of areas of interests carries a self-evaluation character of priorities in the field of professional choice, with an emphasis on the degree of their "pleasantness", i.e. more reflects a hobby than a profession. At the same time, the history of mankind knows many examples when a hobby became the second profession.

According to the data of the differential and summary profiles of Anastasia, it can be seen that in stressful conditions, the logical-mathematical (LM) and intrapersonal (IA) intelligences predominate, Fig. 1. The optimal sphere of professional self-realization is the specialty where Anastasia was educated. Concentration and solitude are frequent companions of mathematicians, which explains the attachment of intrapersonal intelligence to the logical-mathematical one. Bodily-kinesthetic (BK) intelligence is also among the top three, indicating the availability of reserve areas. This fact is confirmed by the data of the overall-comfortable approach in the diagnostics. In comfortable conditions bodily-kinesthetic (BK) and musical-rhythmic (MR) intelligences become leading, Fig. 2. Logical-mathematical intelligence (LM) closes the top three, emphasizing the commonality of the results of differential and summary approaches to diagnostics. Figuratively speaking, the girl Nastya, being a coach in the sports section of dancing does not cease to be a mathematician. However, it is sport (not philosophy and other spheres) that is an important component of her professional and personal self-realization.

What does the list of specialties recommended according to the differential-stress approach to the diagnostics of multiple intelligences tell us?

Table 1

Choice of profession. Areas of specialization, recommended at a differential approach to multiple intelligences diagnostics. Gardner_12 questionnaire

N	%	Field №	Broad field
1	52	05	Natural sciences, mathematics and statistics
2	44	08	Agriculture, forestry, fisheries and veterinary

N	%	Field №	Narrow field
1	83	054	Mathematics and statistics
2	65	081	Agriculture

N	%	Field №	Detailed field
1	83	0541	Mathematics
2	83	0542	Statistics

Table 2

Choice of a hobby. Areas of specialization, recommended at a total approach to the diagnostics of multiple intelligences. Gardner_12S questionnaire.

N	%	Field №	Broad field
1	62	10	Services
2	60	06	Information and Communication Technologies (ICTs)

N	%	Field №	Narrow field
1	86	104	Transport services
2	75	073	Architecture and construction

N	%	Field №	Detailed field
1	91	1014	Sports
2	86	1041	Transport services

Education program, area of education and profession, in the differential-stress approach coincide with those actually obtained: mathematics and mathematical modeling, table 1.

Education program and liable profession coincided with the ones actually available: the coach in the sports section of the dance, table 2. Since it's not about professional sports, but the job in a fitness club, the recommended education program "Service Industry" is considered as the coincidence with the real one. The only discrepancy obtained is in the education area. I would like to emphasize

that Anastasia did not receive a professional sports education (such, for example, as the graduates of The Lesgaft National State University of Physical Education, Sport and Health).

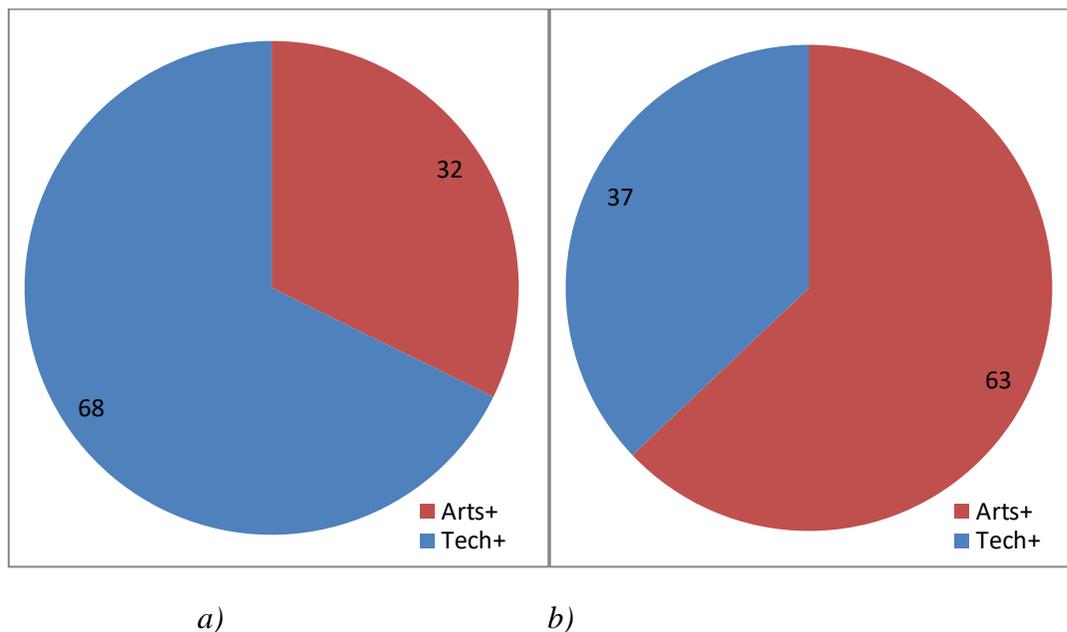


Fig. 3. A percentage ratio of arts and technical profiles according to "Gardner_12" (3a) and "Gardner_12S" (3b) questionnaires

The comparison of the results for differential and summary approaches to diagnostics revealed significant differences in the profiles, which is a rare event (less than 10% of all people surveyed) when working with this program. Thus, in differential-stress diagnostics, a technical profile prevails that coincides with the available specialty "Mathematics and mathematical modeling", fig. 3a. The overall-comfortable approach revealed the predominance of the humanitarian profile, in which "sports" quite conditionally reflects the humanitarian component of the personality, but also cannot be attributed to technical specialties, fig. 3b. According to H. Gardner's concept, passion for sports refers to bodily-kinesthetic intelligence (BK). Naturalistic (NL) and bodily-kinesthetic intelligences are located at the boundaries of the center, the humanitarian and technical profiles are located in antiphase. Thus, Anastasia still has a technical profile, with a professionally oriented hobby in the field of sports.

Conclusion

1. The need to clarify the career choice is observed throughout the active professional life of a person. Clarifying the career choice is a need both personal and sociocultural, dictated by the changing standards of modern society.
2. Professional identity in the conditions of modern society and its demands means the modernization of the recruitment system and its tools.

3. The development and implementation of a qualified instrument into practice is the key to successful recruitment system modernization.
4. Psychophysiological approach and availability in its implementation on the basis of the VibraMI program allows us to consider this program as a qualified instrument for modern recruitment.
5. VibraMI program allows you quickly and efficiently recruit personnel without involving third-party narrow specialists.
6. The differential-stress and overall comfortable approaches of the VibraMI program allows you to test at the psychophysiological level the propensity to a certain type of profession and intelligence, as well as the presence of a formed professionally oriented hobby.

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