Multifactor Stimuli for Blitz Judgement of Multiple Intelligences and Personality Vices

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Abstract: *Method for short 5-second multifactor stimuli presentation (text and graphic) for adaptive psychophysiological testing and personality profiling has been developed and investigated. Multifactor stimuli are based on linguistic and sense binding to matrix including positive personality traits (multiple intelligences types) and negative personality traits (sins and vises). Personality testing was carried out with linear and oppositional sequence of developed multifactor stimuli and the optimal sequence of stimuli presentation was determined. The principles of multifactor stimuli formation are described. The developed stimuli make possible to increase the accuracy of personality profiling while minimizing the testing time to 250 seconds upon presentation of 48 stimuli.*

Keywords: *vibraimage, personality traits, multiple intelligences, stimuli, addictions, vices, sins, blitz judgment.*

Introduction

Most methods of psychological testing are based on presenting certain stimuli to the subject and determining his conscious response to the presented stimuli. An example of psychological testing methods are tests and questionnaires, some of which can be supplemented with visual stimuli (photos or graphic). Historically, the first psychological tools were text questionnaires, the purpose of which is a comprehensive assessment of the personality. For example, a comprehensive personality assessment using the Minnesota Multiphasic Personality Inventory — MMPI (Butcher, 2010) or the Eysenck EPI test (Eysenck, 1972). In text questionnaires, a subject has to ask a large number of questions, fixing only a conscious reaction. Table 1 presents classification of existing psychological and psychophysiological testing, structured on methods of presenting stimuli and determining psychophysiological responses (PPR).

As opposed to text questionnaires, there are psychological methods (projective methods), the design of which involves the use of exclusively visual stimuli (photo, drawing): Luscher's color test (Sobchik, 2001), Sondi's eight drives test (Sobchik, 2002), etc. Such tests appeal mainly to the unconscious realm of man, the unconscious choice of stimuli based on hidden likes and dislikes.

The third option is represented by psychological methods that combine test, questionnaire and projective diagnostic methods: the Rene-Gilles test (Raigorodsky, 1998), the thematic apperceptive test (TAT), the drawn apperceptive test (PAT) and others. In this case, the diagnosis of the unconscious sphere of a person is carried out indirectly by capturing conscious responses.

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Table 1

Psychological and psychophysiological testing classification based on presenting stimuli form and the type of psychophysiological responses (PPR)

No	Stimuli form	Captured PPR	Tests and technologies (samples)	Stimuli presentation period
1	Text	Conscious	MMPI; EPI	unlimited
2	Graphic	Conscious	Luscher, Szondi	unlimited
3	Text&Graphic	Conscious	TAT; DAT	unlimited
4	Text (audio)	Conscious & unconscious	polygraph	>20c
5	Text&Graphic	Conscious & unconscious	vibraimage	5−20c

Apart from traditional psychological methods, there are psychophysiological methods that measure the physiological parameters and/or behavioral characteristics of a person using special equipment, such as a polygraph that registers an unconscious (psychophysiological) response to stimuli (Varlamov, Varlamov, 2010). The division of testing methods into psychological and psychophysiological ones is often conditional, since the conscious response of a person and the unconscious (psychophysiological) reaction under certain conditions may be interconnected, or may not have a connection (Minkin, 2020; Minkin, Nikolaenko, 2020). At the same time, the division of personality testing methods according to the method of stimuli presentation (textual or graphic) and according to the method of registering a response (conscious or unconscious) is more objective for classifying personality testing. Therefore, a polygraph with the presentation of textual stimuli in audio form and the registration of both conscious and unconscious responses should be attributed to the fourth direction of personality testing.

Vibraimage technology (Minkin, Nikolaenko, 2008; Minkin, Nikolaenko, 2017; Minkin, 2007; 2020) presents text and visual stimuli during personality testing and registers the conscious and unconscious responses of the subjects when stimuli are presented. Thus, according to formal features, vibraimage technology receives maximum information about the personality during testing. Recent studies in vibraimage technology were aimed at identifying significant personality characteristics during pretesting (Minkin, Nikolaenko, 2020) and the most complete disclosure of personality through the presentation of stimuli aimed at identifying positive and negative characteristics (Minkin, Nikolaenko, 2022). At the same time, we strive to minimize the testing time (Minkin, 2021), simplify the practical application of the developed technology, and eliminate the effect of fatigue on the subject, which should lead to an increase in the accuracy of assessing personal characteristics (Minkin, 2019). Recent results of testing time minimizing shown that the presentation of 5-second stimuli increases the accuracy of personality assessment (Minkin, 2021). However, the presentation of such short visual and textual stimuli requires a revision of the principles of their formation, since the subjects simply do not have time to respond to complex stimuli. In addition, for short stimuli, the order of presentation of stimuli becomes even more important, which significantly affects the result of assessing personal qualities. The technology of adaptive personality profiling (Minkin, Nikolaenko, 2022) determines both positive personality traits (abilities, multiple intelligences profile) and negative personality traits (vices, sins). In the framework of this work, we do not make a clear distinction between the terms vices and sins, since we consider repeated sins to be personality vices.

The purpose of this study: the development graphic and text stimuli for short 5-second presentation of adaptive psychophysiological testing to determine the leading types of multiple intelligences (MI) and personality vices profile (VP).

Hypothesis: The sequence of stimuli presentation (linear or oppositional) affects the accuracy of profiling results. It is assumed that the linear method of presenting multifactor stimuli to identify the profile of personality defects increases the accuracy of the results in a comprehensive assessment of the personality and its abilities. The presentation of short 5-second stimuli reduces the possibility of conscious and unconscious adjustment of the psychophysiological response, increases the accuracy of personality profiling and determining the profile of personality defects.

Methods

To develop stimuli for MI-Sins blitz judgment program (Minkin, Nikolaenko, 2022), we used the adaptive psychophysiological testing approach previously used in the VibraNLP software (Nikolaenko, 2020, 2021; Minkin, Nikolaenko, 2020). The structure of the questionnaire includes 360 stimuli, 72 control for MI (24 random) and 288 multifactor stimuli, from which subjects were presented 24 text and graphic stimuli. During testing, 48 out of 360 individual stimulus questions are presented, which must be answered only Yes or No.

The total testing time is 250 seconds. The developed stimuli make it possible to identify the profile of 12 types of MI (Gardner, 1983; Minkin, Nikolaenko, 2017), determine the 2 leading types of MI, and present the subject with multifactor stimuli associated with 12 personality vices or sins. Stimuli have linguistic link for the text and sense link for the graphics with 2 leading types of MI. The leading types of MI are determined by the unconscious responses (IE), without taking into account the conscious responses of a subject (YN) at the pretesting stage.

Then, during the main testing (based on the 2 leading types of MI identified during the pretesting), the subject is asked to answer 24 multifactor stimulus questions (corresponding to 12 personality vices). Each of the 12 stimuli that define vices is thematically (graphics) and linguistically (text) tied to certain 2 leading types of MI.

The time of stimulus presentation (text and graphic) is 5 seconds, since it was previously proven that with a short 5-second presentation, the ability to consciously and unconsciously correct answers is minimized, which increases the reliability of test results (Minkin, 2021). As a result, the personality profiling has high accuracy (pretesting of multiple intelligences — 24 questions) and the responses to sins/vices stimuli (basic testing — 24 questions). The traditional comfortable testing model of 15 seconds has been abandoned, as 15 seconds is sufficient time for conscious and unconscious adjustment of responses.

The block diagram of adaptive psychophysiological testing method (based on the MI-Sins software) is shown in Figure 1. The upper part of the figure 1 shows MI profile identified at the pretesting stage. Program selects two leading MI types — creative and philosophical. For these MI types test presents multifactor stimuli and fixed the response on it. Other types of MI were not tested to identify VP, since they are not significant for this subject (Gardner, 1983; Minkin, Nikolaenko, 2020).

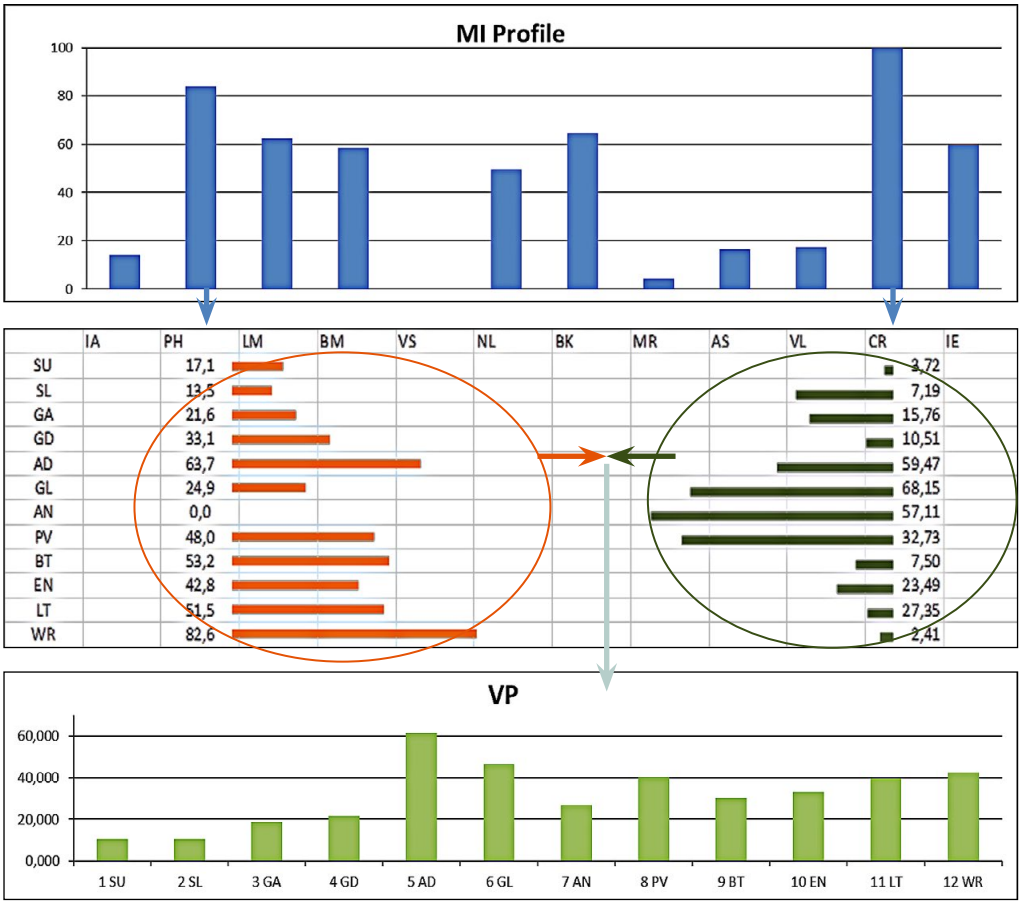


Fig. 1. *Structure of adaptive psychophysiological testing including MI-Sins stimuli responses matrix (MI-VP) for 2 leading MI types*

Symbols for multiple intelligences (MI) types: IA — Intrapersonal; PH — Philosophical; LM — Logical-Mathematical; BM — Business-Commercial; VS — Visual-Spatial; NL — Aturalistic; BK — Bodily-Kinesthetic; MR — Musical-Rhythmic; AS — Ascetic; VL — Verbal-Linguistic; CR — Creative; IE — Interpersonal.

Symbols for vices profile (VP): SU — suicide; SL — sloth; CA — cyber(gadget) addiction; GD — greed; AD — alcoholism, drug addiction; GL — gluttony; AN — anorexia; PV — pride, vanity; BT — bribes, theft; EN — envy; LT — lust; WR — wrath, rage

The resulting lower VP on Figure 1 is formed by averaging VP obtained for the leading types of MI — philosophical and creative. We confirmed that tied to leading MI stimuli aimed at detecting VP to the leading types of MI makes it possible to increase the significance of these stimuli for the subject and improve the accuracy of the subject's VP detection (Minkin, Nikolaenlo, 2020). At the same time, the proposed method allows presenting not $12 \times 12 = 144$ multifactor stimulus questions to the subject, but only $2 \times 12 = 24$, which significantly reduces the testing time and improves accuracy, since the subject's responses is not littered with insignificant stimuli.

The list of text and graphic for test corresponding Figure 1 stimuli, is given in Table 2.

Table 2

Basic testing. The list of multifactor stimuli, corresponding to the creative and philosophical types of MI. Abbreviations are identical to Figure 1

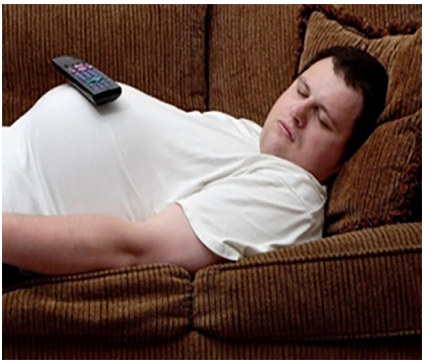
№	Vices Abbr.	Stimuli for Creative MI type	Stimuli for Philosophical MI type
1	SU	I can't create anymore, don't want to live anymore 	My life is meaningless, there is no reason to live 
2	SL	All my creative undertakings remained undertakings 	If you want to work, lie down and everything will pass 
3	CA	Internet for Entertainment. This creativity is available to me 	My life is spent in a smartphone, internet 

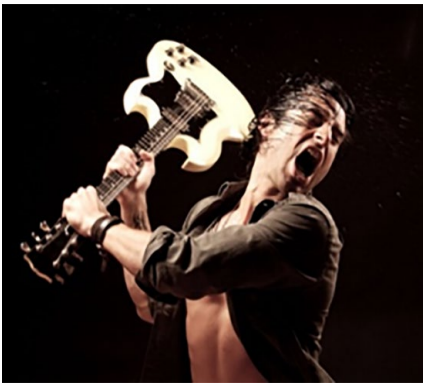
Table 2 *(continuation)*

№	Vices Abbr.	Stimuli for Creative MI type	Stimuli for Philosophical MI type
4	GD	I will sue anyone who violates my copyright 	I keep broken and old things, do not throw them away 
5	AD	For Muse visit, you need drugs 	I drink regularly: the truth is in wine, joy also 
6	GL	I am a hedonist and sybarite, food is creative process for me 	Good food is like being in heaven 

Table 2 *(continuation)*

№	Vices Abbr.	Stimuli for Creative MI type	Stimuli for Philosophical MI type
7	AN	Creative personality — a refined and thin personality 	I live consciously with a slight feeling of hunger 
8	PV	I am a person with great creativity 	I really an example, I'm better than many 
9	BT	Is necessary to steal creatively, as not to be suspected 	I have a philosophical attitude to bribes: give — take 

Table 2 *(ending)*

№	Vices Abbr.	Stimuli for Creative MI type	Stimuli for Philosophical MI type
10	EN	All the so-called creative people are just bums 	I envy philosophers: loafers who are respected 
11	LT	Erotica is my favorite art form 	Person is born for carnal pleasures 
12	WR	I will kill anyone who interferes my creativity 	My life philosophy — violence and pain 

Each of Table 2 questions has sense link to the vices and the leading types of MI.

Let's consider the first line of Table 2, linking the suicidal stimulus (SU) to the creative and philosophical MI types.

I can no longer create — semantic link to creative type.

I no longer want to live — a semantic link to suicidal vice.

So, the text multifactor stimulus:

I can no longer create, I no longer want to live — is connected in meaning both with creative type of MI and with suicidal vice.

Similarly, consider the following suicidal-philosophic multifactor stimulus.

My life is meaningless — a semantic link to philosophical type.

There is no reason to live — a semantic link to suicidal vice.

So, the text multifactor stimulus:

My life is meaningless, there is no reason to live — is connected in meaning both with the philosophical type of MI and with suicidal vice.

Similarly, stimuli were selected all combinations of 12 MI types and 12 VP (Minkin, Nikolaenko, 2022). Moreover, in the questionnaire, each stimulus has 3 semantic analogues presented in random order during testing, which allows one person to be tested several times without the effect of addiction.

Materials

Within one day (February 2022), 20 studies of one person were carried out by the MI-Sins program (Minkin, Nikolaenko, 2022) upon presentation of the stimulus material described in this paper. The order of presentation of neutral (MI) stimuli was identical in all 20 measurements; for multifactor stimuli were done 10 measurements with the linear method of presenting multifactor stimuli, also 10 measurements were done with the oppositional method of presenting multifactor stimuli (Minkin, Myasnikova, 2018). Subject: female, Russian, 41 years old.

The processing of the obtained results was carried out using a package of statistical data processing: MIS_Stat software (Elsys Corp) and Excel program.

Results

The averaged results of 10 measuring MI-Sins profile for the subject's unconscious response (IE) to linearly presented multifactor stimuli are shown in Figure 2.

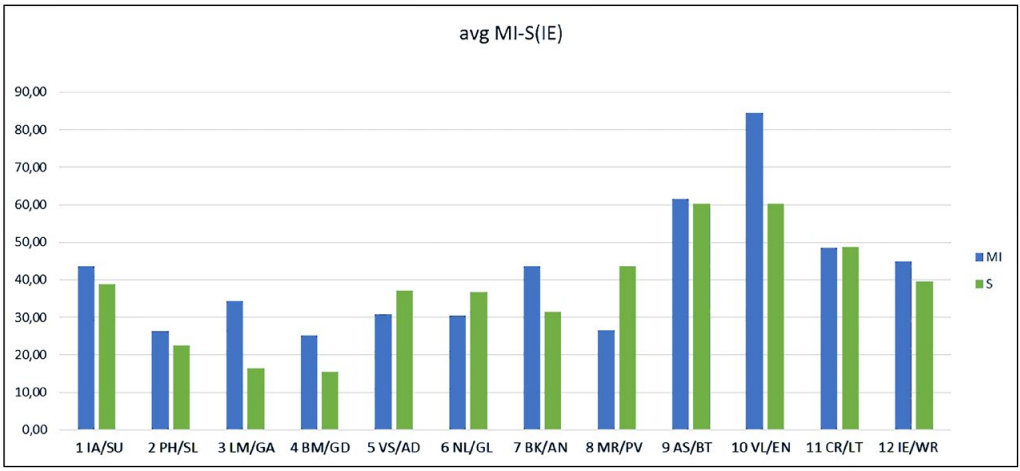


Fig. 2. *The average MI-Sins profile for the subject's unconscious response (IE) to linearly presented multifactor stimuli*

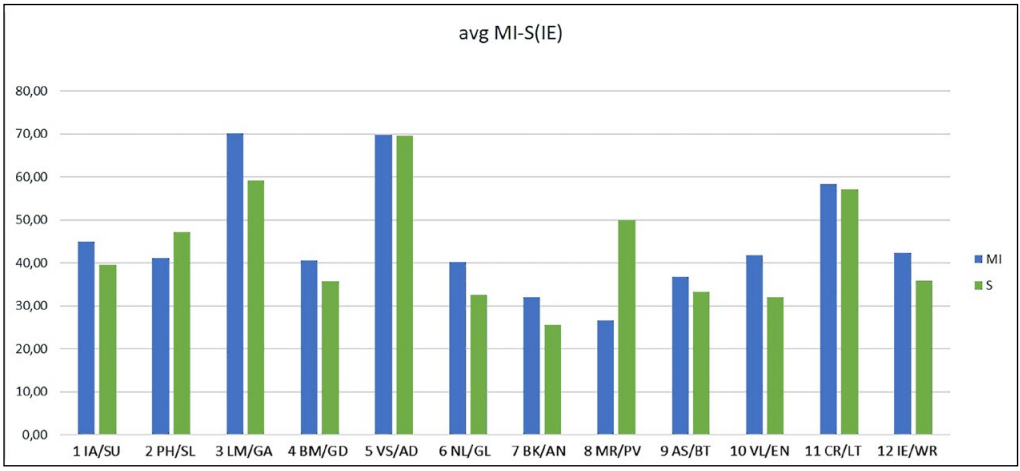


Fig. 3. *The average MI-Sins profile for the subject's unconscious responses (IE) to oppositional presented multifactor stimuli*

The averaged results of 10 measuring MI-Sins profile for the subject's integral response (IE+YT) to linearly presented multifactor stimuli are shown in Figure 4.

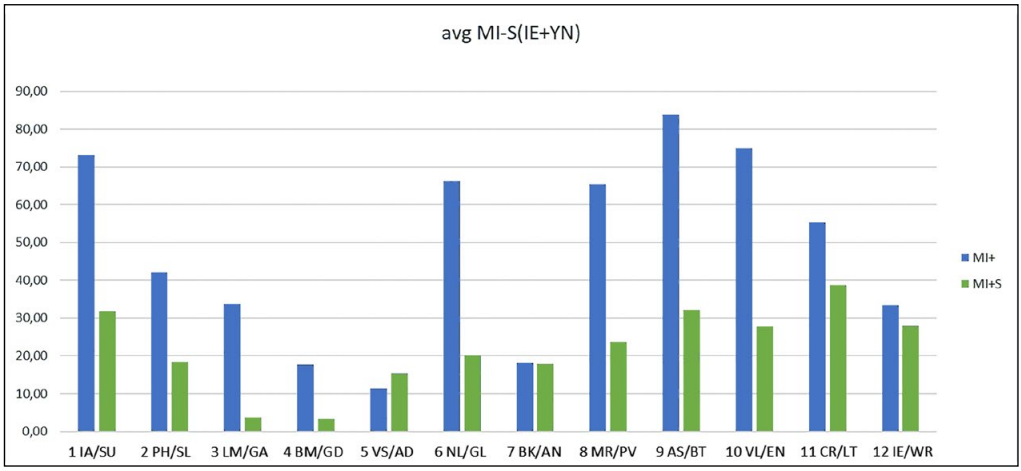


Fig. 4. *The average MI-Sins profile for the subject's integral response (IE+YN) to linearly presented multifactor stimuli*

The averaged results of 10 measuring MI-Sins profiles for the subject's integral response (IE+YN) to oppositional presented multifactor stimuli are shown in Figure 5.

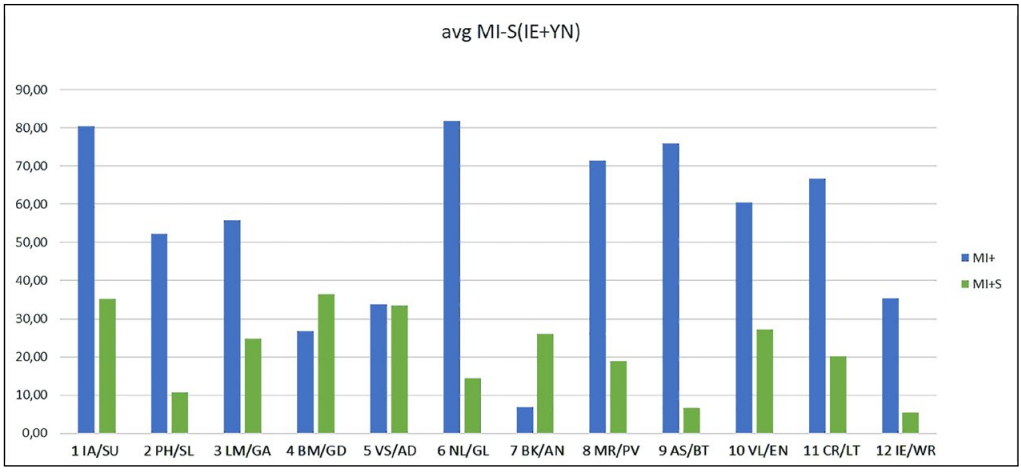


Fig. 5. *The average MI-Sins profile for the subject's integral response (IE+YN) to oppositional presented multifactor stimuli*

Discussion

A comparative analysis of the test results presented in Figures 2–5 leaves no doubt that the method with linear presentation of multifactor stimuli turned out to be the most accurate, both taking into account the unconscious and integral assessment of the abilities and VP of the subject. Let's start with an unconscious assessment of the MI profile. The sequence with linear presentation of multifactor stimuli (Fig. 2, 3) showed a clear leadership of the verbal-linguistic and ascetic types of MI for the subject, who is an obvious humanitarian and extrovert by self-estimation and experts estimation. While the oppositional approach with the presentation of multifactor stimuli showed the subject to have the most developed logical-mathematical and visual-spatial types of intelligence, which, according to experts, is a clear mistake.

Also, the profile of vices/sins according to the unconscious responses to linear stimuli showed more correct assessments from the point of view of experts, the leading sins were envy and lust, which were noticeably inferior in magnitude to the reaction to neutral stimuli. With the opposite presentation of multifactor stimuli, the leading sins turned out to be cyber-addiction and alcohol-drug addiction, which are absolutely not characteristic of the subject at the moment.

The integral response of the subject (Fig. 4, 5) to the linear and oppositional sequence of multifactor stimuli showed closer results, especially in profiles of MI types. Although here, too, the MI profile seems to be more correct for the linear presentation of stimuli, since the intrapersonal and natural types of MI turned out to be leading in the oppositional presentation of stimuli, which is clearly not typical for a humanitarian and an extrovert.

The ascetic and verbal-linguistic types of MI turned out to be leaders for the linear presentation of multifactor stimuli both by unconscious and integral reactions, which in principle allows using any of these assessments in the future to select the leading types of MI. At the same time, the ratio of the sum of neutral to sinful stimuli (an indicator of the righteousness of the subject) turned out to be approximately the same for the linear and oppositional presentation of multifactor stimuli.

This may indicate that, despite certain shortcomings in the determination of personal qualities, both sequences can be used to determine the general level of righteousness of a subject. But this assumption needs further verification, since the result obtained may show a significant effect of only conscious responses to stimuli. In this regard, a clear preference is shown by the assessment of the unconscious response during the linear presentation of stimuli, which showed reliable results of subject testing for all different assessments. Of course, the proposed method of personality profiling and the developed stimuli need more statistical testing in different conditions.

In this study, we formulated principles for stimuli development that reflect universal human values and are equally relevant for various cultural and religious traditions. The creation of just such a universal series of stimuli for identifying vices and sins, linguistically associated with the leading types of MI, is one of the basic elements of objective psychophysiological testing, which makes it possible to determine the relationship between the positive and negative human characteristics in the course of an extremely short study.

How adequately the universal questionnaire will work in different countries will be shown by future tests. At present, we are accustomed to and treat with understanding when pre-shift psychophysiological control of people in dangerous professions takes place (Bobrov et al., 2021), for example, drivers of a bus or train with several hundred passengers. But so far no one has dared to carry out at least periodic control over the adequacy of politicians, on whose decisions the fate of billions of people depends. If scientists have created nuclear weapons capable of destroying life on earth in seconds, then the task of scientists is to create such objective means of controlling human vices that should not allow inadequate people to rule states. Of course, we understand how far this task from practical implementation. However we believe that the correct formulation of the problem is half the solution, and the MI-Sins program (Minkin, Nikolaenko, 2022) can become the basis for such a future objective control for not only workers but political leaders.

Conclusion

The studied method of presenting multifactor stimuli having a linguistic and sense link between a person's abilities and his vices/sins, showed practical applicability and the ability to determine a profile of 12 types of multiple intelligences and profile of 12 major human vices/sins of a person under study during a short 250 second test, which at the moment is unsurpassed achievement of personality profiling.

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