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INHERITED AND NON-INHERITED FEATURES OF MENTALITY: A NEW METHOD OF EXPERIMENTAL RESEARCH

Improving methods of psychological testing is an urgent task due to the increasing use of remote testing and the need to refine the balance between phylogenetic and ontogenetic components of the psyche. These circumstances require the modernization of existing approaches to the design of psychological tests. The aim of this study is to develop a testing methodology focused on identifying hereditary components in an individual's psyche. The central idea of the research is that consideration of hereditary and sociocultural factors can enhance the effectiveness of psychological diagnostics and psychotherapeutic practices. The scientific and practical significance of the study lies in the fact that the proposed methodology provides new opportunities for analyzing the mechanisms of manifestation of the sociocultural code and for improving psychotherapeutic tools. The research methodology is based on the use of neural network technologies to generate images on a given topic and to compare them within "mother-daughter" pairs. This approach makes it possible to identify correlations that reflect hereditary components of the psyche. The results demonstrate that the proposed methodology can effectively reveal hereditary elements of the psyche and support the neural network theory of social formation, according to which human consciousness has a dual nature that includes both individual and collective components. The contribution of this study consists in advancing the theoretical foundations of psychodiagnostics and in demonstrating the potential of artificial intelligence for identifying hereditary aspects of the psyche. The practical significance of the results lies in creating the basis for the development of new psychotherapeutic practices that take into account the influence of the sociocultural code on personality formation.

Keywords: images, neural network, inherited ideas, mentality, spirit of the nation, transpersonal level of information processing, mentality.

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Менталитеттің тұқым қуалайтын және тұқым қуаламайтын ерекшеліктері: эксперименттік зерттеудің жаңа әдісі

Психологиялық тестілеу әдістерін жетілдіру қазіргі таңда өзекті мәселе болып табылады. Бұл, бір жағынан, қашықтан тестілеуді қолданудың кеңеюіне, екінші жағынан, психиканың филогенетикалық және онтогенетикалық құрамдастарының арақатынасын нақтылау қажеттілігіне байланысты. Осы жағдайлар психологиялық тесттерді құрастырудың қолданыстағы тәсілдерін жаңғыртуды талап етеді. Зерттеудің мақсаты – индивид психикасындағы тұқым қуалайтын құрамдастарды анықтауға бағытталған тестілеу әдістемесін әзірлеу. Зерттеудің негізгі идеясы тұқым қуалайтын және социомәдени факторларды ескеру психологиялық диагностика мен психотерапиялық практикалардың тиімділігін арттыруға мүмкіндік береді деген тұжырымға негізделеді. Жұмыстың ғылыми және практикалық маңызы ұсынылған әдістеменің социомәдени кодтың көрініс беру тетіктерін талдауға және психотерапиялық құралдарды жетілдіруге жаңа мүмкіндіктер ашуында. Зерттеу әдіснамасы нейрондық желілердің көмегімен берілген тақырыпқа

қа суреттер құруға және оларды «ана – қыз» жұптары аясында салыстыруға негізделген. Мұндай тәсіл психикадағы тұқым қуалайтын құрамдастарды бейнелейтін корреляцияларды анықтауға мүмкіндік береді. Зерттеу нәтижелері ұсынылған әдістеменің психиканың тұқым қуалайтын элементтерін тиімді айқындай алатынын және адам санасының дуалды табиғатын сипаттайтын нейрондық желілік қоғам қалыптастыру теориясын растайтынын көрсетті. Бұл теорияға сәйкес, санада жеке және ұжымдық құрамдастар қатар өмір сүреді. Зерттеудің үлесі психодиагностика теориялық негіздерін дамытуда және психиканың тұқым қуалайтын аспектілерін анықтау үшін жасанды интеллектінің мүмкіндіктерін көрсетуінде. Алынған нәтижелердің практикалық маңызы – тұлғаның қалыптасуына социомәдени кодтың ықпалын барынша ескеретін жаңа психотерапиялық практикаларды әзірлеуге негіз қалайды.

Түйін сөздер: суреттер, нейрондық желі, тұқым қуалайтын идеялар, менталитет, ұлт рухы, ақпаратты өңдеудің трансперсоналды деңгейі, менталитет.

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Наследуемые и ненаследуемые особенности ментальности: новый метод экспериментального исследования

Совершенствование методов психологического тестирования является актуальной задачей, что связано с ростом применения тестирования в дистанционном формате и необходимостью уточнения соотношения филогенетических и онтогенетических компонентов психики. Эти обстоятельства требуют модернизации существующих подходов к построению психологических тестов. Цель настоящего исследования заключается в разработке методики тестирования, направленной на выявление наследуемых составляющих в психике индивида. Основная идея работы заключается в том, что учет наследуемых и социокультурных факторов позволяет повысить эффективность психологических диагностик и психотерапевтических практик. Научная и практическая значимость исследования определяется тем, что предложенная методика открывает новые возможности для анализа механизмов проявления социокультурного кода и совершенствования психотерапевтических инструментов. Методология исследования основана на применении нейросетевых технологий для построения изображений на заданную тему и их сравнении в рамках пар «мать – дочь». Такой подход позволяет выявлять корреляции, отражающие наследуемые компоненты психики. Результаты исследования показывают, что предложенная методика действительно позволяет фиксировать наследуемые элементы психики, а также подтверждает положения нейросетевой теории формирования социума, согласно которой сознание человека имеет дуальную природу и включает индивидуальную и коллективную составляющие. Вклад проведенной работы состоит в развитии теоретических основ психодиагностики и в демонстрации возможностей использования искусственного интеллекта для выявления наследуемых аспектов психики. Практическая значимость результатов заключается в создании предпосылок для разработки новых психотерапевтических практик, максимально учитывающих влияние социокультурного кода на формирование личности.

Ключевые слова: изображения, нейронная сеть, наследуемые идеи, ментальность, дух нации, трансперсональный уровень обработки информации, ментальность.

Introduction

The structure of the mentality is obviously quite complex.

At a minimum, in the mind of any person there are ideas formed in the family and inherited, as well as ideas that a person acquires in the process of interacting with the environment. Currently, it is recognized that the structure of personality is

very complex (Fajkowska, 2015; Baumert, 2017; Watters, 2018) it has deep components that generate ideas associated with archetypes (Keller, 2021, Oberlack, 2019) as well as components whose formation is determined by ideas characteristic of this particular historical period (Molden, 2016; Krause, 2019).

The characteristics associated with the concept of “mentality” used in the literature are usually

qualitative (Allen, 2017; Pernu 2017; Molenberghs, 2016). Quantitative characteristics obtained, for example, by the method of sociological surveys, carry mostly indirect information. In particular, the vast majority of standard sociological surveys do not allow us to separate ideas formed by hereditary mechanisms and ideas acquired, say, as a result of interaction with the youth environment and, therefore, characteristic only for this particular generation.

Such a division, however, seems more than important. Ideas specific to a particular generation can be significantly transformed over time, may be displaced by others, etc. Such ideas, among other things, can be formed artificially through the tools of political technologies, etc.

Along with them, there are deep ideas, which together constitute what forms the “spirit of the people” (Suleimenov, 2024a). These ideas often cannot be formulated explicitly, they are very close to archetypes in nature, however, they also have a very, very strong influence on human behavior.

The study of such ideas, which can also be called inherited patterns, is not only of academic interest. As current practice shows, many psychotherapeutic techniques that have been developed on the basis of material that meets the Western European mentality do not always work adequately in Kazakhstan (Cuijpers, 2018; Klapilova, 2019; Iskakova, 2023). Therefore, in order to adapt them, it is necessary to have tools that will at least identify the relevant features.

In this paper, an attempt is made to develop a methodology that allows you to separate inherited patterns from ideas specific to specific generations.

Literature review

Table presents information on literary sources that reflect both the current state of research in the field of psychological testing methods (in relation to the issue of the sociocultural code) and the relevance of the present study.

Table – Information on literary sources that reflect both the current state of research in the field of psychological testing methods

Subject/area of research	Sources of information
The feasibility of improving psychological testing methods	(Scognamiglio, 2023), (Elosua, 2023), (Fairburn, 2017), (Gupt, 1988), (Cipresso, 2017)
Using psychological testing remotely	(Barak, 2002), (Naglieri, 2003), (Wright, 2021), (Martinez-Cengotitabengoa, 2022), (Krach, 2020)
The non-trivial structure of the individual psyche	(Fajkowska, 2018), (Allen, 2017), (Baumert, 2017), (Kelle, 2021), (Iskakova, 2023)
Discussions about the essence of the term «mentality»	(Krause, 2019), (Molden, 2015), (Oberlack, 2019)
The problem of the collective component of the psyche (the development of L.S. Vygotsky's ideas, their current state)	(Vasileva, 2019), (Ardila, 2016), (Rigopouli, 2025), (Chen, 2025)
Problems of socio-cultural code	(Goldman, 1999), (Goldman, 2009), (Li, 2023), (McCombs, 1972), (Entman, 1993), (Newman, 2018), (Barabási, 1999)
The relevance of taking into account socio-cultural factors in psychotherapeutic practices	(Tseng, 2022), (Zhang, 2022), (Castro, 2010)

Materials and methods

The proposed technique is based on the use of an artificial neural network that provides image generation based on a verbal description, the possibilities that currently exist here are very wide (Cai, 2019; Amritkar, 2018; Agnese, 2020)

Respondents were offered a number of key phrases, in particular:

1. Naughty daughter
2. A major official
3. Ancestral Spirits
4. A depraved girl
5. The Great Steppe

The task of the respondents was to make a verbal description for each of the proposed key phrases and then adjust it so that the picture obtained using the neural network corresponded to their ideas about this subject.

The respondents were selected in pairs of “Mother and daughter”, which makes it possible to distinguish between ideas corresponding to inherited patterns and ideas specific to specific generations.

The choice of a mother and Daughter pair also corresponds to the possibility of excluding (at least at this stage of research) gender factors.

Results and discussion

For example, two variants of primary verbal descriptions written by respondents (a mother and

daughter couple) for the phrase “Naughty daughter” are presented below.

Mother’s description: she sits with headphones on, pretends that she does not hear her mother, is offended, although she did the wrong thing.

Daughter’s description: a girl who doesn’t want to hear anything is hysterical, just not to hear her mother’s screams.

Further, these descriptions were clarified by the respondents in order to obtain a personalized picture that reflects their understanding of this particular term or situation.

Examples of images constructed by a neural network for three pairs of respondents (mother and daughter) are shown in Fig. 1 – Fig. 4. These images correspond to the phrases “Naughty daughter”, “Ancestral spirits”, “Depraved girl” and “High official”.





Figure 1 – Images corresponding to the phrase “Naughty daughter” Fig. a), b), c) answer three pairs of respondents, the left drawings are daughters, the right ones are mothers





Figure 2 – Images corresponding to the phrase “Spirits of the ancestors”

Fig. a), b), c) answer three pairs of respondents, the left drawings are daughters, the right ones are mothers





Figure 3 – Images corresponding to the phrase “Depraved girl” Fig. a), b), c) answer three pairs of respondents, the left drawings are daughters, the right ones are mothers





Figure 4 – Images corresponding to the phrase “Major official” Fig. a), b), c) answer three pairs of respondents, the left drawings are daughters, the right ones are mothers

In Fig. 1 clearly demonstrates the presence of certain stable ideas about this subject, characteristic of a particular generation.

For daughters, the phrase “naughty daughter” clearly correlates with screams, tears, whims, etc. One of the drawings contains elements of a “riotous life” (an open bottle). On the contrary, the representations of mothers are much more associated with the rejection of exhortations, withdrawal, unwillingness to really listen. Two of the pictures, based on the descriptions of the mothers, are in many ways identical.

Figure 2, on the contrary, shows that the ideas of “ancestral spirits” are essentially the same for mother and daughter in each of the couples. At the same time, such representations are significantly different for different pairs. So, for both mother and daughter, according to whose descriptions Fig. 2a, the spirits of the ancestors represent a kind of abstraction, they are depicted extremely schematically. These images rather correspond to cartoon characters. It can be concluded that in the minds of this family, such ideas are almost completely absent. For family members, according to whose descriptions Fig. 2b, ideas associated with ancestral spirits, rather, represent folklore images known to them from literature, including fiction. These images do not reflect ideas about ancestral spirits (which, apparently, are not peculiar to this family), but ideas about the existence of tribes that worshipped such spirits.

Some ideas about ancestral spirits are typical only for the third family (Fig. 2b). It can be seen that in this case, both mother and daughter tried to reflect

these ideas through images of certain sacred places (for Kazakhs, images of a traditional dwelling – a yurt, and other symbols of the Great Steppe can act as such).

Summarizing the analysis of the results shown in Figure 2, it can be argued that, in contrast to the results of Figure 1, there is a stable inheritance of patterns, apparently associated with the archetypal level of consciousness.

A similar conclusion can also be drawn based on the analysis of Fig. 3. Inherited patterns, inherited ideas about the manifestations of sinfulness are also clearly traced here. In relation to the pair of Fig. 3a, sinfulness is reflected through external ideas of decency and the direct connection of depravity with short-cut clothes, without reference to behavior or interaction with others. Both mother and daughter, according to whose descriptions Fig. 3b were constructed, sought to express sinfulness not only and not so much through the appearance of the heroine, but through the nature of her interaction with the environment. For fig. 3b demonstrates a typical representation of sinfulness through the same attributes, down to the material of clothing and bright makeup, here we can speak with confidence about clear examples given in the family indicating the depravity of a girl, it is permissible to assume that we are talking about certain specific persons.

Figure 4 is also of interest. The heritability of patterns is also largely traced here, in particular, Fig. 4b reflects the desire to display a status official in a grotesque and even parodic form, which corresponds to the more than critical attitude of these

respondents towards officials. However, the main features of the perception of high-ranking officials remain common to all respondents, these are visible evidence of wealth, a focus on demonstrating their high social status by officials, disregard for ordinary people, etc.

Based on Fig. 4, it can be concluded that there are also ideas shared by society, regardless of generations, inherited patterns, etc. They, as can be concluded in this case, are associated with the negative reaction of Kazakh society to the nature of the bureaucracy. These reactions are also very stable and are strengthened from year to year due to the adoption of incompetent decisions, numerous problems caused by the corruption of the state apparatus in Kazakhstan, etc.

Thus, even the relatively modest amount of experimental material presented in this paper suggests that it is possible to identify and classify inherited/non-inherited patterns characteristic of Kazakhstan's families.

This suggests that it makes sense to continue working in this direction and transfer it to the system level, especially if we take into account the hypotheses formulated in (Suleimenov, 2024a; Suleimenov, 2024b).

According to these hypotheses, there is a transpersonal level of information processing, the nature of which is ultimately determined by the same processes that take place in the separate brain. There is no doubt that human consciousness is an object of informational nature, arising from the exchange of signals between neurons of the brain. Any interpersonal communication, however, also actually boils down to the exchange of signals between neurons, but only localized in different heads. Consequently, interpersonal communication actually leads to the formation of a common neural network.

It should also be taken into account that the ability of a neural network to store and process information depends non-linearly on the number of elements, which is proved both by current practice (increasingly large neural networks are being created for applied purposes) and by direct mathematical modeling (Suleimenov, 2022).

Consequently, a common neural network formed as a result of interpersonal communications also has some additional properties that cannot be reduced to the characteristics of its individual components, i.e. individuals. It should be noted that similar conclusions were drawn in the philosophical literature quite a long time ago: "public consciousness is not reduced to the consciousness of individuals".

This approach, in particular, allows us to give a consistent interpretation of such concepts as "mentality", "socio-cultural code", "collective unconscious", etc. from the point of view of information theory.

Moreover, as noted in (Suleimenov, 2024b), the consideration of society as an analogue of a neural network correlates with the hypothesis put forward in (Vanchurin, 2020), according to which the universe as a whole can also be considered as a neural network. Indirectly, this hypothesis is also confirmed by the results of works (Suleimenov, 2016; Suleimenov, 2021) in which specific examples of complex systems were presented, which it is advisable to analyze using analogy with neural networks.

The existence of a transpersonal level of information processing suggests that there are mechanisms that cause the inheritance of certain patterns (behavioral, psychological, etc.) that are not related to upbringing in a particular family. In the extreme case, these mechanisms are associated with the inheritance of archetypes, i.e. information objects lying in the field of the collective unconscious. Along with archetypes, however, there may be more fundamental patterns, which, as the materials of this article show, can also be inherited (presumably by the same mechanisms as archetypes).

It is quite difficult to identify these mechanisms, however, it is impossible not to see that the proposed approach provides researchers (including psychoanalysts) with very extensive material for interpretation. There is no need to prove that images, even if constructed using a neural network, carry a much larger amount of information than, for example, answers to questions from psychological tests, etc.

Thus, the technique proposed in this work in the future allows you to significantly expand the tools used by practicing psychologists and /or psychoanalysts.

In particular, the proposed method makes it possible to identify the impact of the socio-cultural code on the current behavior of the subject.

For countries such as Kazakhstan, such factors seem to be very important, since current psychotherapeutic practice shows that many psychological problems of citizens of Kazakhstan are associated with a kind of collision or competition of various socio-cultural codes. Conventionally, they can be divided into three groups: Eurasian, Islamic, and pro-Western. Impulses dictated by the need (often unconsciously) to follow various socio-cultural codes often lead to various kinds of negative effects on the psyche, which are difficult to overcome with-

out understanding the mechanisms of the relevant processes.

Conclusion

Thus, modern information technologies, which allow, among other things, to build images based on a verbal description, create additional opportunities for research in the field of psychology.

In particular, images created by the respondent using publicly available Internet resources can become a tool for psychological/psychotherapeutic analysis. These images reveal the respondent's response to the question much more fully than, for example, answers to questions from standard psychological tests.

The above resources, as shown by the materials of this work, among other things, can be used to identify inherited patterns, in the long term, and those that relate to the archetypal level.

The identification of such patterns, among other things, is of interest from the point of view of psychotherapeutic practice in Kazakhstan, since a number of specific deviations in this country are associated with the contradictory influence of various socio-cultural codes on the same personality.

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