PRINCIPLES OF WEBSITE DESIGN FOR PROFESSIONAL PSYCHOLOGICAL DIAGNOSIS IN DIFFERENT SPECIALTIES

Abstract. The rapid IT development in the 21st century has a significant impact on scientific communications and research in all branches of modern science. Psychological science cannot stay aside this non-stop process. Indeed, the modern IT capabilities provide wide opportunities for psychological research in terms of speed, accuracy, volume and cross-culture perspective.

The article describes theoretical, methodological and practical principles of design of websites for professional psychological diagnosis. Adherence to these principles ensures that the psychological diagnostic websites: 1) attract visitors and maintain the necessary level of their confidence and interest; 2) provide anonymity, clarity, convenience and ease of use; 3) have high informational value, content richness and scientific character; 4) differentiate the respondents and help receive feedback from them.

The research methods used include the analysis of the national and foreign experience of IT use in psychological research, modelling and online psychological diagnosis organised on two psychological diagnostic websites with 26 psychological diagnostic methods and questionnaires. The detailed structure and developmental rules for diagnostic Internet sites are substantiated. A number of specific aspects concerning diagnostic Internet site application for professional psychological diagnosis are discussed.

The scientific foundations developed by the authors for the use of remote professional psychological diagnosis have been successfully tested on two created psychological diagnostic websites http://prof-diagnost.org and http://hr-test.org and confirmed by the research carried out with their help. These sites are aimed at solving conceptually rather different research tasks. The first site has become the basis for fundamental research performed by different scientists, whereas the other has provided an opportunity to adapt 11 modern English-language psychological diagnostic techniques related to the diagnosis of occupational stress for their use in Ukraine.

Keywords: informational and communicational technologies; psychological research; online psychological diagnosis; professional psychological diagnosis; diagnostic website; psychological diagnostic methods.

1. INTRODUCTION

Statement of the problem. The rapid IT development in the 21st century has had a significant impact on scientific communication and research in all branches of modern science[1], [2]. Psychological science cannot stay aside this non-stop process. Indeed, the modern IT capabilities provide wide opportunities for psychological research in terms of speed, accuracy, volume and international scope.

We are going to illustrate this on the example of the psychology of professional work. It is the most dynamically developing branch of psychology today. New approaches, directions, new fields of research appear here, as a result of constant changes in the content, nature and conditions of human labour, in the nature of labour relations, social-economic conditions, etc.
Accordingly, there is a constant need for ongoing research aimed at addressing diverse challenges in the field of the modern psychology of professional work [3].

These challenges include: development and updating of psychological profiles for different professions, including new ones; professional psychological selection; improvement of vocational guidance; primary and secondary prevention of personal professional distortions, “professional burnout”, overcoming of crises in an individual’s professional development; consistent psychological support at all stages of the professional career and many others [4], [5]. One of the effective ways of addressing these challenges is introduction of remote (online) professional psychological diagnosis that meets the modern requirements for psychological research.

**Analysis of recent research and publications.** In particular, researchers note that during empirical studies identifying psychological characteristics of various professions, a social-psychological climate in organizations, development of professional qualities of specialists, etc., especially performed directly in the organizations where they work, there is a problem of significant distortion of obtained results because of insufficient sincerity of respondents and negative influence of other side factors [6] - [8].

Respondents, consciously as well as unknowingly, can distort the results obtained through surveys and psychological diagnosis. This is due to the respondents’ justified fears that the results obtained from the surveys (despite all assurances in the opposite) will be known to colleagues, bosses, and others. Also, employees often feel depressed due to time limitations, necessity to be distracted from their urgent professional tasks, to fill out research forms together with other employees; all these facts influence the research negatively [9].

All these negative phenomena occurring during "direct contact" research can be largely avoided by using the modern psychological diagnostic approach based on new IT, such as remote (online) professional psychological diagnosis. This approach is particularly useful for fundamental research aimed at identifying general patterns and features of the phenomena under study. It allows scientists to expand significantly an examined sample in terms of its quantitative, regional, cross-cultural and professional parameters. But even for research in a particular organization, solving its specific practical problems, IT use may also be expedient and effective [9].

This approach is a modern area of computer psychological diagnosis. Computer psychological diagnosis, according to L. Burlachuk [10], is the direction of research associated with the use of computer technologies during examination and/or analysis of its results, as well as development and application of computer tests. The main purpose in this area is development of psychological diagnostic tools, including computer psychological diagnostic methods, as well as development of fundamentally new types of experiments and methods of work with psychological information [11].

In particular, the main advantages of computer psychological diagnosis, all of which remain relevant for remote professional psychological diagnosis according L. Burlachuk [10], K Chervinskaya [11], K-D. Hansgen & M Perrez [12], are the following:

− improved efficiency of a researcher’s work due to enhanced data processing and quick test results;
− an opportunity to concentrate on solving exclusively professional problems by freeing a researcher from labour-intensive routine operations;
− increased clarity, diligence and purity of psychological research thanks to improved accuracy of result registration and exclusion of data processing errors which are inevitable during manual calculation of initial data;
− possibilities to organise large-scale psychological diagnostic research in a short time by simultaneous testing of many respondents;
higher standardization of diagnostic conditions due to the same instruction for all respondents and presentation of survey results separately on personal traits of respondents and those of the researcher;
- an opportunity for respondents to be more explicit and natural during a testing procedure due to the confidentiality of automated testing;
- an opportunity to enlarge psychologists’ experience through the computer interpretation of test results;
- an opportunity to accumulate and store systematically not only data about respondents, but also testing results; thus solving the problem of “loss” of psychological diagnostic information, typical for “manual” tests.

The purpose of the article. The article describes theoretical, methodological and practical principles of design of websites for professional psychological diagnosis.

2. METHODS OF RESEARCH

The research methods include the analysis of current research (including the national and foreign experience of IT use in psychological research), modelling and online psychological diagnosis on two diagnostic websites http://prof-diagnost.org and http://hr-test.org.

26 psychological diagnostic methods and questionnaires were used on these websites (Self-Efficacy Scale of R. Schwarzer & M. Yerusalem; Modification of the Questionnaire on Professional "Burnout" and Deformation – MBI; Test for Communication and Organizational Skills Determination; The Klimov’s Differential Diagnostic Questionnaire, Motivation For Professional Work of K. Zamfir & A. Rean; The Technique ”Studying of Satisfaction with Profession and Work”; Professional Self-Fulfilment Questionnaire; Personal Orientation Inventory of Everett L. Shostrom; Organizational Stressors Scale of P. Spector & S. Jex; Aggressive Experiences Scale – AES T. Glomb & H. Liao; Factual Autonomy Scale – FAS P. Spector & S. Fox; Job Mobility Scale of B. Tepper; Counterproductive Work Behaviors Scale of R. Bennett & S. Robinson et. all).

3. RESULTS OF THE RESEARCH

Practical implementation of remote professional psychological diagnosis is based on the use of specially designed diagnostic websites. Depending on the tasks to be solved, such sites may differ in structure, diagnostic tools placed on them, presentation of questionnaires or other material, obtained results and methods of data processing. While developing and using such sites, scientists should both observe the general rules of psychological, including psychological diagnostic, research, and take into account the specifics of psychological research in a particular professional field, as well as psychological peculiarities of the Internet use.

3.1. The overall site structure

While designing a diagnostic website, the first task to be addressed is to inspire site visitors with the necessary level of trust and interest in proposed surveys and psychological diagnosis. The home page is the key to inspiration of such trust and interest. This can be achieved by:

1) website presentation as a development of a reputable scientific or educational institution with indication of a specific department responsible for the site;
2) a personal address to visitors delivered by a person representing the institution hosting the website,
3) a clear explanation of the site goals and proposed diagnostic methods, their usefulness for visitors;
4) emphasizing and substantiating complete anonymity and free of charge diagnosis for visitors;
5) presentation of an opportunity for site visitors to give feedback, expressing their wishes, references and remarks.

On the second page (the second website level) created for visitors willing to undergo a diagnosis, it is advisable to place a list of offered questionnaires or psychological diagnostic methods, a general instruction and fields for entering the respondent’s general information (gender, age, occupation, profession, location, etc.).

The general guidelines before the start of diagnosis should motivate respondents to provide true information about them (which is important for further scientific use of the results) and explain the options for choosing diagnosis with varying degrees of anonymity and feedback. To perform diagnosis, respondents are proposed to take a pseudonym so that the system is able to address them. The need to provide respondents’ true general information is substantiated by the fact that, firstly, this does not reduce their anonymity, and secondly, they can receive a more accurate interpretation of the results obtained.

Also, respondents should be given an opportunity to choose different options concerning their further identification if they decide to re-visit the website. In our case, the first option is to introduce only a pseudonym and the respondent’s general information (if some information is not entered, this should not deprive the respondent of an opportunity to undergo diagnostic procedure).

In the second option, respondents are also asked to specify their contact e-mail. The main purpose of such registration is an opportunity for the registered respondents to receive messages about updates of the methods or questionnaires listed on the site, and to obtain results to their e-mail for all completed techniques by a request to the administrator. Also, for new techniques, respondents will no longer have to re-enter their general information. In addition, it should be ensured that researchers’ e-mails will not be used for other purposes.

Of course, the second option is much better for site developers and their research interests because e-mail is a unique identifier (and names or pseudonyms can be repeated by different respondents). And it gives the opportunity to add automatically to the database the results of additional techniques done by a particular respondent during their next visit to the site. Also, if a respondent gives his/her e-mail, it indicates their high interest in obtaining objective results for the diagnosis performed, which is usually accompanied by a relatively greater sincerity in filling of questionnaires.

But the first option, besides the fact that the results obtained is this case have certain scientific value, if a correct approach to their analysis is chosen, also plays a psychologically important role. Thus, many potential respondents, seeing two choices (without and with e-mail), understand it as a sign that the site owners do not have any covered intentions toward them (e.g. are not going to send spam etc.) and finally choose to enter their e-mail.

So, after a respondent’s identification and confirming their desire to start the diagnosis, they are transferred into the third site level, where they have an opportunity to choose any method or questionnaire from the proposed list for diagnosis. If there are a lot of techniques, it is advisable to distribute them into groups, for example, “Professional motivation”, “Cognitive abilities”, “Professionally important personal traits”, etc.

After that, a respondent has an opportunity to go to the fourth level, which is the diagnostic page for a selected technique. This page should indicate the techniques title, its purpose, present a short, clear, but full enough instruction. All questions of a questionnaire,
psychological diagnostic tools or other stimuli, if possible, should be placed on the same page so that the respondent could choose his/her answer for each question with just one click of the left mouse button. After filling all the answers, he/she on the same page confirms the end of the work and the desire to get results by clicking on the appropriate "button" at the page bottom.

The fifth level of a diagnostic website presents a page with the obtained research results. On this page, it is expedient, if possible, to show key elements as clear as possible, in a form understandable and useful to respondents, to highlight received results. The following information will strengthen respondents’ trust in the site and their motivation to continue answering:

− a quantitative result in points for each indicator studied with questionnaires or methods and (or) its written explanation;
− the meaning of each indicator;
− psychological and professional interpretation of results;
− normative indicators for questionnaires or methods so that respondents could compare their results;
− if possible, some useful personal or professional recommendation for a respondent, based on obtained results;
− positive wishes (for example, professional success);
− the invitation to return to the list of methods to continue the diagnostic procedure.

Each page of the fifth level consists of variable and unchanged components. The variable component is formed depending on obtained results for a certain respondent. The unchanged component is the same for all respondents. For example, meanings of indicators, quantitative norms, general recommendations, etc. can be included into such unchanged component.

3.2. Other aspects of using a professional psychological diagnostic website

As for languages, diagnostic websites can be in one language or in several (for example, Ukrainian, English, Russian). Naturally, a multi-language site should show full identity and adequate translation for all language versions, as well as standardization, validity and reliability of all diagnostic tools in all languages. Multilingual options are justified by the need to ensure the possibility to perform diagnosis for respondents who do not know a particular language well. Attraction of respondents speaking different languages may provide the opportunity to determine regional and cross-cultural peculiarities of the phenomena under study.

It is important that a website have a simple and easy-to-remember Internet address that accurately reflects its purpose.

The main ways to attract visitors to perform professional psychological diagnostics are the following:

− the site must be incorporated into various search engines, which requires proper site registration in these systems;
− site advertising at various specialized psychological and professional forums;
− contextual advertising by keywords through specialized advertising portals, which, on the one hand, are able to cover the widest audience, on the other hand, can propose a very selective and purposeful coverage of the Internet audience by country of residence, time, intensity of advertising, etc.;
− targeted e-mailing to psychologists, managers, administrators of certain organizations with offers of free online professional psychological diagnosis for their employees;
while performing research in person at a particular organization, a researcher tells its employees the site address, and they can go through research from office computers (in this case, it is a kind of alternative to blank testing, providing a greater level of anonymity);

- targeted mailing to the indicated contact emails of the previously studied respondents with information on new techniques.

It is expedient to store respondents’ general information and the results obtained for all techniques filled by them in the electronic database for the further statistical processing.

Of course, remote professional psychological diagnosis through a diagnostic website has both advantages and some problems and disadvantages.

We believe that the main advantages are:

- comparatively (in comparison with a direct research at organizations) higher sincerity of respondents;
- a possibility for respondents to choose independently the time and place for diagnosis;
- the ability of such an approach to cover large samples of respondents (including respondents from different regions and countries) over relatively short periods of time;
- saving of consumables (paper, printing materials) and transportation costs;
- saving of time for result processing and inclusion into the electronic database;
- compliance with the current scientific demands and IT developments.

Applying distant professional psychological diagnosis, a researcher should take into account its inherent drawbacks and problems, and use a series of procedures that could significantly reduce their impact.

Just as in traditional (“direct contact”) psychological diagnosis, a certain part of obtained results will be unsuitable for further scientific application due to:

- absence of general information about some respondents;
- lack of serious attitude of some respondents to diagnosis, non-observance of instructions;
- a questionnaire being done twice or more times by the same respondent under different pseudonyms, etc.

Therefore, an important task during preparation for statistical processing and further analysis of the obtained data is to discard obviously inappropriate results and to differentiate the remaining. We believe that the results of those respondents who have not indicated general information or have done only 1 - 2 techniques from the proposed list or have shown too high marks on the “scale of lie” for some techniques or have given obviously distorted answers should be rejected.

The remaining data should be divided into two main groups. The first group includes the results of those respondents who have indicated their contact e-mail. They, in our opinion, are the most reliable ones. The second group is results shown by the respondents who have indicated only pseudonyms. In order to determine whether the results of the second group can be used, they need to be statistically compared with the first group, of course, taking into account professional, age, regional, gender and other aspects.

So, based on the above analysis of the specifics of online professional psychological diagnosis, we can formulate the following basic principles for its application:

- trust and interest;
- intelligibility, convenience and simplicity;
- anonymity and free of charge basis;
- visibility and wealth of information;
– content-richness and scientific substantiation;
– differentiation of respondents;
– availability of feedback.

4. CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Thus, the article substantiates theoretical, methodological and practical principles of design of diagnostic websites to provide practical implementation of the distance (online) professional psychological diagnosis. Adherence to these principles ensures that the psychological diagnostic websites:

1) attract visitors and maintain the necessary level of their confidence and interest;
2) provide anonymity, clarity, convenience and ease of use;
3) have high informational value, content richness and scientific character;
4) differentiate the respondents and help receive feedback from them.

The scientific foundations, developed by the authors for the use of remote professional psychological diagnostics, have been implemented into practice and tested successfully on two created psychological diagnostic sites http://prof-diagnost.org and http://hr-test.org and confirmed by the research carried out with their help. These sites are aimed at solving rather different research tasks.

The http://prof-diagnost.org site has became the main research base for fundamental research performed by the scientists from Kostiuk Institute of Psychology of the National Academy of Educational Sciences Ukraine, the corresponding results have been presented in a number of collective monographs-reports [13] - [15].

The site http://hr-test.org has provided an opportunity to adapt 11 modern English-language psychological diagnostic techniques related to the diagnosis of occupational stress for use in Ukraine [16] - [18].

Prospects for further research are creation of a research Internet portal, which will provide opportunities to perform online psychological research in different areas in different languages.

REFERENCES (TRANSLATED AND TRANSLITERATED)


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**ПРИНЦИПИ РОЗРОБКИ САЙТІВ ДЛЯ ПРОФЕСІЙНОЇ ПСИХОДІАГНОСТИКИ В РІЗНИХ СПЕЦІАЛЬНОСТЯХ**

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**Анотація.** Бурхливий розвиток ІКТ у XXI столітті істотною мірою позначився на сфері наукової комунікації та наукових досліджень усіх галузей сучасної науки. Не може залишатися огородь від цього незумінного процесу і психологічна наука. Адже сучасні можливості ІКТ, безумовно, надають можливості для істотного підвищення швидкості, точності, обсягу та крос-культурності психологічних досліджень.

У статті викладено розроблені авторами теоретико-методологічні та практичні принципи розробки сайтів для професійної психології. Дотримання цих принципів створює для психологічних веб-сайтів можливості: 1) залучення відвідувачів та підтримання необхідного рівня їхньої довіри та зацікавленості; 2) забезпечення анонімності, зрозумілості, зручності та легкості використання; 3) наявності високої інформаційної цінності, інформативності та наукової обґрунтованості; 4) диференціації досліджуваних та отримання від них зворотного зв'язку.

Використано такі дослідницькі методи, як аналіз сучасних досліджень (які містять вітчизняний та зарубіжний досвід психології та використання ІКТ в психологічних дослідженнях), моделювання, дистанційна психологія, з використанням двох психологічних сайтів та 26 психологічних методик та опитувальників.

Дослідно обґрунтовано структуру та правила розробки й використання діагностичного Інтернет-сайту. Розглянуто ряд специфічних прикладних аспектів використання діагностичного Інтернет-сайту при здійсненні професійної психології. Розроблені авторами наукові основи використання дистанційної професійної психології були практично втілені та успішно апробовані при створенні та здійсненні досліджень на двох психологічних сайтіх http://prof-diagnost.org та http://hr-test.org, що змістово спрямовані на вирішення концептуально досить різних дослідницьких задач. Перший став основою дослідницькою базою для здійснення
науковцями фундаментальных досліджень, а використання другого надало можливість адаптувати 11 сучасних англомовних психодіагностичних методик, пов’язаних із діагностикою професійної напруженості.

Ключові слова: інформаційно-комунікаційні технології; психологічні дослідження; дистанційна психологія; професійна психологія; діагностичний Інтернет-сайт; психологічні методики.

ПРИНЦИПЫ РАЗРАБОТКИ САЙТОВ ДЛЯ ПРОФЕССИОНАЛЬНОЙ ПСИХОДИАГНОСТИКИ В РАЗНЫХ СПЕЦИАЛЬНОСТЯХ

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Аннотация. Бурное развитие ИКТ в XXI веке в значительной степени отразилось на сфере научной коммуникации и научных исследований всех отраслей современной науки. Не может оставаться в стороне от этого безостановочного процесса и психологическая наука. Ведь современные возможности ИКТ, безусловно, предоставляют возможности для существенного повышения скорости, точности, объема и кросс-культурности психологических исследований.

В статье изложены разработанные авторами теоретико-методологические и практические принципы разработки сайтов для профессиональной психологической диагностики. Соблюдение этих принципов создает для психологических сайтов возможности: 1) привлечения посетителей и поддержания необходимого уровня их доверия и заинтересованности; 2) обеспечения анонимности, понятности, удобства и легкости использования; 3) наличия высокой информационной ценности, информативности и научной обоснованности; 4) дифференциации испытуемых и получения от них обратной связи.

Использованы такие исследовательские методы, как анализ современных исследований (включая отечественный и зарубежный опыт психологической диагностики и использования ИКТ в психологических исследованиях), моделирование, дистанционная психологическая диагностика, с использованием двух психологических сайтов и 26 психологических методик и опросников.

Полдобно обоснованы структура, правила разработки и использования диагностического Интернет-сайта. Рассмотрен ряд специфических прикладных аспектов использования диагностического Интернет-сайта при осуществлении профессиональной психологической диагностики.

Разработанные авторами научные основы использования дистанционной профессиональной психологической диагностики были практически воплощены и успешно апробированы при создании и осуществлении исследований на двух психологических сайтах http://prof-diagnost.org и http://hr-test.org, содержательно направленных на решение концептуально достаточно различных исследовательских задач. Первый стал основной исследовательской базой для осуществления научных фундаментальных исследований, а использование второго позволило адаптировать 11 современных англоязычных психологических методик, связанных с диагностикой профессиональной напруженности.

Ключевые слова: информационно-коммуникационные технологии; психологические исследования; дистанционная психологическая диагностика; профессиональная психологическая диагностика; диагностический Интернет-сайт; психологические методики.

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