Доказательное образование как феномен науки и практики

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АННОТАЦИЯ

Введение. Заметным дидактическим явлением последних трех десятилетий зарубежного, а также российского образования, выступает так называемое доказательное образование. Данный феномен подразумевает более тесное соответствие преподавательской работы и результатов опытно-экспериментальных исследований, что призвано способствовать улучшению профессиональных результатов в образовательной практике.

Материалы и методы. В ходе исследования применялись следующие исследовательские методы: сбор материала и критический анализ научной литературы, а также аксиологический подход, ставящий целью определение ценностного содержания в трудах отечественных и зарубежных авторов. В процессе работы автор опирался на публикации ряда видных исследователей.

Результаты. Доказательное образование проявляет себя на двух уровнях. Первый уровень заключается в использовании педагогом существующих научных данных из области мировых исследований и литературы по образованию и смежным дисциплинам. Второй уровень состоит в способности педагога устанавливать достоверность самих доказательств в тех случаях, когда они носят сомнительный, неопределенный или слабо выраженный характер. Поэтому задача второго уровня состоит в том, чтобы гарантировать соответствие исследований педагогов в области образования критериям обеспечения их научной обоснованности, высокого качества и практической значимости.

Обсуждение. Доказательное образование это практика, основанная на фактических научных данных; научно обоснованный подход к принятию профессиональных решений и действий, направленный на совершенствование педагогического процесса путем добросовестного, четкого и разумного использования имеющихся научных данных. К настоящему времени сама идея доказательного образования находится в стадии осмысления и разработки, и пока нет оснований для заключения о том, что идеология этого феномена содержательно отражается в содержании педагогического процесса в общей и профессиональной школе.

Заключение. Содержательное наполнение доказательного образования представляет собой особенно большую сложность для учителей-практиков. Исследования в этой области необходимо продолжать.

КЛЮЧЕВЫЕ СЛОВА

доказательное образование, экспериментальная работа в образовательном учреждении, использование научных знаний в педагогическом процессе

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Evidence-based education as a phenomenon of science and practice

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ABSTRACT

Introduction. A notable didactic phenomenon of the last three decades of foreign as well as Russian education is the so-called evidence-based education. This phenomenon implies a closer correspondence between teaching work and the results of experimental research, which is designed to improve professional results in educational practice.

Materials and methods. The author used the following research methods: collection of material and critical analysis of scientific literature, as well as an axiological approach aimed at determining the value content in the works of domestic and foreign authors. In the process, the author relied on the publications of a number of prominent researchers.

Results. Evidence-based education manifests itself on two levels. The first level is the teacher's use of existing scientific data from the field of world studies and literature on education and related disciplines. The second level consists in the teacher's ability to establish the reliability of the evidence itself in cases where it is doubtful, uncertain or weakly expressed. Therefore, the task of the second level is to ensure that the research of teachers in the field of education meets the criteria for ensuring their scientific validity, high quality and practical significance.

Discussion. Evidence-based education is a practice based on factual scientific data; a scientifically based approach to making professional decisions and actions aimed at improving the pedagogical process through conscientious, clear and reasonable use of available scientific data. By now, the very idea of evidence-based education is in the stage of reflection and development, and so far there are no grounds for concluding that the ideology of this phenomenon is meaningfully reflected in the content of the pedagogical process in general and vocational schools.

Conclusion. The content of evidence-based pedagogy is particularly difficult for practical teachers. Research in this area needs to be continued.

KEYWORDS

evidence-based education, experimental work in an educational institution, the use of scientific knowledge in the pedagogical process

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INTRODUCTION

An important characteristic inherent in developed and developing countries nowadays is the desire to place ever higher demands on the development of their national education, primarily for its compliance with increasingly high international standards, and in conditions, as a rule, of rather limited – or even decreasing – material, financial and pedagogical resources. The educational "agenda" in the world is increasingly determined by the dominant political ideology, the dominant social and cultural trends in a given society, the traditions adopted in a particular country, local national characteristics and other important factors and circumstances.

General education and vocational schools are required to meet the needs and interests of the economy, business, employers, law and order, civil society, the choice of parents and children, as well as those persons who make binding decisions for education workers aimed at raising the level of the educational community.

Education issues occupy an important place in the activities of all states, the most important international institutions and organizations. UN Chief Antonio Guterres proposes to provide a new conceptual vision of a future society based on the concept of learning, which would focus on the following six principles: building a comprehensive, integrated system of education and lifelong learning; ensuring equality and accessibility in the field of education; ensuring the relevance of curricula and pedagogical methods; reorienting teachers' activities so that they act as creative mentors and intermediaries in the learning process; using digital tools; expanding investments in education [1]. The UN calls on governments all over the world to bring education issues to the center of their attention. Education systems must adapt to changing professional skills so that learning is student-centered; it becomes more technological, dynamic, and inclusive. Educational resources should be developed to reflect these changes in teaching and learning methods [2].

In the Russian Federation, education reform is carried out within the framework of the National Project "Education". The aim of the project is to ensure the global competitiveness of Russian education, the entry of the Russian Federation into the top 10 countries in the world in terms of the quality of general education; the upbringing of a harmoniously developed and socially responsible personality based on the spiritual and moral values of the peoples of Russia, historical and national cultural traditions; the introduction of new teaching and upbringing methods, educational technologies that ensure the development of basic skills and abilities, increasing their motivation to learn and involvement in the educational process, as well as updating the content and improving teaching methods in the subject area; forming an effective system for identifying, supporting and developing abilities among young people based on principles of justice, universality, and aimed at self-determination and professional orientation of students; creating conditions for early development of children, implementing a program of psychological, pedagogical, methodological and advisory assistance to parents of children receiving pre-school education in a family.

To solve these tasks, it’s envisaged to create a modern and secure digital educational environment that ensures high quality and accessibility of education; the introduction of a national system of professional growth of teaching staff; modernization of vocational education, including through the introduction of adaptive, practice-oriented and flexible educational programs; the formation of a system of continuous updating by working citizens of their professional knowledge and the acquisition of new ones professional skills [3].

As we can see, changes in educational thinking and practice are increasingly directed "from top to bottom" by governments, think "opinion leaders", the media and academic institutions, whose research is often selective, unsystematic and (or) are subject to political or scientific bias. An important place in the implementation of educational reform tasks in any country and at all times has been occupied by the problem of using advanced didactic approaches, methods and teaching tools. This topic includes many aspects and is an integral part of the content of pedagogical journals. Researchers propose alternative pedagogical systems and schools [4]. One of these types of schools are, in particular, agricultural family schools [5]. Student evaluation of teaching surveys (hereinafter – SETS) is one of the most controversial tools used in higher education, globally. Recently the impact that SETS had on innovation in pedagogy has been raised as a potential problem [6].

Traditionally, considerable attention in foreign pedagogy is paid to private methods and forms of work, for example, the use of laboratory work [7] and films [8]. Teachers advocate an increasingly close connection between didactics and psychology [9]. According to scientists, the school is designed to become a center for human development [10]. But in order to achieve this task, the reform of teachers and schools must proceed as a single, interpenetrating process [11]. The goals of improving modern education are served by transnational and transcultural educational models of the past [12]. Researchers are also studying the legacy of prominent educators in order to use it in the interests of modern education [13]. The idea of so-called co-creation of learning is spreading [14]. Special importance is still attached to the use of the project method [15]. It's put forward by some scientists as a kind of alternative to traditional education [16]. This method is also recognized as an important tool in the training of future engineers [17], teachers [18] and even musicians [19]. Some researchers, as they did many years ago, still even believe that the project method should be the basis of the entire learning process [20].

In the last three decades, more and more attention has been paid in the pedagogical press to such a new phenomenon as evidence-based pedagogy (evidence-based education) [21]. The purpose of our research is to reveal the content of a number of aspects of evidence-based pedagogy.

MATERIALS AND METHODS

In the process of research, the author used methods of collecting material and critical analysis of scientific literature, an axiological approach to understanding the data obtained in order to identify the most valuable content in the works of domestic and foreign authors. The work uses publications by such researchers as J. Pintassilgo, M. Southwell, R. Fisher, C. Perera, R. Laferriere, A. M. Shier, D. Williams, G. A. Totikova, A. A. Yessaliyev, N. K. Madiyarov, N. Medetbekova, O. V. Rogachева, E. V. Frolova, T. M. Ryabova, T. Aderet-German, A. Segal, D. Vedder-Weiss, S. Polenghi W. Grandi, L. Kaminskienė, V. Žydžiūnaitė, T. Ponomarenko. L. Cabedo, M. Sultana, S. Zaki, G. Fuertes, M. Vargas, L. Soto, C. A. Caswell, C. Mallinson, E. N. Borisova, N. V. Letkina, N. P. Busygina, T. G. Podushkina, V. V. Stanilevsky, etc.

Their works have been published in such journals as Espacio, Tiempo y Educación; International Journal of Changes in Education; The European Journal of Social Education; European Journal of Contemporary Education; Research Papers in Education; Ricerche di Pedagogia e Didattica – Journal of Theories and Research in Education; Advances in Higher Education; International Journal for Lesson and Learning Studies; IEEE Latin America Transactions Interdisciplinary Journal of Problem-Based Learning; Integration of education; Journal of English Linguistics; Critical Analysis of Current Discussions; Psychological-Educational Studies, etc.

RESULTS

Evidence–based education (from English – evidence-based education) is an approach to all aspects of education, starting from the development of state educational policy up to educational practice, in which the methods used by teachers (theorists and practitioners) are based on significant and reliable evidence obtained as a result of carefully the experimental work carried out. Evidence-based education has a common goal with evidence-based medicine, since it was in medical theory and practice that the concept of "evidence-based medicine" first arose. The essence of implementing this approach in practice is to use the best methods of teaching (treatment) obtained using the theoretical method to make scientifically sound educational (therapeutic) decisions. At the end of the twentieth century, research teachers in English-speaking countries published the first publications on the topic of evidence-based education [22]. But, according to modern researchers of this problem, up to the present time it's very often unclear whether the use of evidence-based education in educational thinking and practice is better or worse than the methods they replace. This is partly due to the obvious fact that educational activities are often inadequately evaluated with the help of not too carefully designed and conducted controlled tests, so-called quasi-experiments, simple surveys and studies based on the uncomplicated principle of "before" and "after", as well as "research" based only on a method of observation, passive in its nature.

Moreover, existing scientific research and assessments are rarely systematically searched, extracted and read, critically evaluated for quality, reliability and relevance, as well as systematization and assessment of the degree of reliability of the results (evidence) obtained as a result of these studies. The task of evidencebased pedagogy (evidence-based education), a phenomenon based on scientific evidence, is to make education and pedagogy, which, as is known, is its scientific and theoretical embodiment, much more accurate, evidence-based, and close to objective truth.

Naturally, the question arises, what needs to be done in order for education and pedagogy to become, if possible, more evidence-based. It seems obvious that it's impossible for a teacher in ordinary pedagogical practice and a scientist, when considering theoretical postulates, to back up each of his actions, if I may say so, with one or another previously achieved scientific results. And what do you mean by these results? Some scientific truths established by great teachers, starting with Confucius and Socrates? It seems obvious that the desire to popularize evidence-based pedagogy and evidence-based education is nothing more than a call from a certain part of theorists to practical teachers to actively use scientific achievements in this professional field. In other words, a practical school teacher, and even more so a university professor, must always adhere to principle of evidence in his practical daily work, i.e. coordinate each of his significant actions in terms of significance and possible consequences with achievements of science, primarily pedagogy, computer science and science that underlies this academic subject (biology, mathematics, etc.).

According to a number of foreign researchers, evidence-based education, based on evidence, manifests itself on two levels. The first level consists in the teacher's use of existing data from the field of world studies and literature on education and related disciplines. Specialists in the field of first-level education should have the following skills. This is the ability to ask questions to which the student can give a specific answer. He must know where and how to systematically and comprehensively find evidence using normative textbooks, electronic (computer) and non-electronic (printed) sources, as well as a variety of media. The student is obliged to competently extract (read) the necessary evidence, conduct the critical assessment and analysis in accordance with agreed professional and scientific standards. Naturally, he must be able to systematize this evidence and be able to assess the strength of this evidence, as well as determine its relevance to educational needs.

The second level is the ability of a teacher to establish the reliability of the evidence itself in cases where it's questionable, uncertain or weakly expressed. Specialists in the field of evidence-based education working at this level should be able to plan, conduct and publish their own research that meets the highest standards, using methods of social and natural sciences, as well as humanities and related academic (subject) disciplines. The task of the second level is to ensure that the research of teachers in the field of education meets the criteria of scientific validity, high quality and practical significance; all this is often lacking in the currently conducted, almost spontaneously conducted in the course of educational activities, teacher mini-experiments.

The need for both levels of evidence-based practice in education seems obvious if the goal is to raise the level of education. At the same time, it's obvious to everyone that call for mass scientific research in the field of education will not do anything good either for the theory of pedagogy or for practice of education, but will simply lead to an increase in the volume of second-rate "educational research" that doesn't make a serious contribution to fundamental theory or knowledge, and which aren't relevant to practice, and, of course, aren't consistent with any previous or subsequent studies. Very often they simply clutter up scientific journals that almost no one reads.

D. Davis considers the statement often expressed in the scientific literature that medicine and healthcare are based on natural sciences, while education is much more firmly connected with the social sciences, to be untrue. In fact, research in the field of education is based on the methodological principles and practice of both natural and social sciences [22, p. 113]. Another thing is that researchers evaluating educational methods, as a rule, rely more on controlled comparisons of relevant educational institutions, namely on the availability of such parameters as appropriate equipment, equipment, room area, etc. For a long time, there has been a serious gap between the research and teaching communities in countries where influential scientific communities operate that develop the theoretical and methodological content of education, and these are, as a rule, pedagogical universities, research institutes of pedagogy, various kinds of pedagogical centers, etc.

It often seems that the staff of academic institutions forget that research in the field of education shouldn’t only contribute to the growth of disciplinary knowledge, but above all, contribute to the improvement of teaching practices in educational institutions. The latter often doubt relevance and quality of educational research, and most importantly, the necessity, applicability and the very possibility of their effective dissemination in daily pedagogical process carried out by them. It’s known that what seems relevant to one ceases to seem so to others; to a large extent, much depends on what goals, objectives and questions are set in the study, in what context they are solved and for what practical purposes. The requirements of practice in one context can make seemingly "narrow" and secondary part of the study very relevant and very instructive for those who use it. In order to support transfer of knowledge between research and teaching practice, researchers, policy makers and educators have begun to promote and apply two approaches. The first approach is an active involvement of teachers in research process, for example, in research projects, in "design-based research" (this is the development of activities to ensure learning in real conditions).

The second approach is to familiarize teachers with existing scientific data in the field of education and upbringing. It’s assumed that these evidence-based professional actions – that is, evidence-based pedagogy – can positively contribute to teachers making reasonable professional decisions. Pedagogical work will become more effective due to consideration by teachers of results of scientific research in the field of teaching and learning. However, evidence-based practice doesn’t simply imply a top-down process (i.e., the transition from research to practice), when research data is the only source of information. Instead, in order to improve teaching and learning, research data should be combined with the professional judgment of teachers [23].

In this sense, educational research data represent an additional source of information for professional pedagogical practice, which complements the knowledge of teachers, their practical experience, advice from fellow teachers and other positive "assets" that teachers can use to inform about their classroom activities. Such information is a factual material for the formation of bases of the best pedagogical practices. It’s assumed that their combination is able to give, in some cases, a synergetic effect, and contribute to a more effective solution of educational tasks in the course of working with students. But more often, nevertheless, there is a situation in which the requirements of the teaching community are one thing, and the material imposed on practitioners by theorists in the form of thoughtful and far from the urgent needs of education monographs is quite another.

One can't disagree with the view that research in the field of education really lacks a cumulative character, and that they need to "move to a situation where new research is more effectively based on previous scientific work, and when more attention is paid to verifying competing interpretations of data, regardless of whether they are of descriptive or explanatory character" [24, p. 144].

But where can a particular teacher get acquainted with the really best practices and the results of previous research? This isn’t such an easy task, because there is no single bank of practices. In practice, we are increasingly encountering a phenomenon that can be called "rediscovery", or quasi-discovery. We are referring to the phenomenon that has become widespread, when the conclusions contained in doctoral, candidate's, and even master's theses are presented by the authors of these "scientific opuses" as a kind of innovation. The problem here isn’t so much that teachers don’t conduct research, or that they are often excluded from defining a research program – both of which may well be true – as that there is often a lack of sufficient scientific culture of teachers conducting, or even using research to justify their daily school practice. Hence, the second-rate "research".

Evidence-based practice can contribute to the formation of the basis for the development of professional knowledge, skills, and, consequently, competencies and actions in the field of education. Such mature practice can also ensure that those who conduct educational research should be properly trained in research methods beforehand, and therefore understand the underlying theoretical and methodological principles, which undoubtedly improves the quality of their conduct.

In the USSR, as soon as it became possible to criticize state-funded institutions, i.e. since the second half of the 1980s, a powerful wave of criticism of the Academy of Pedagogical Sciences and its constituent research institutes rose. Even people who were very far from the problems of education and pedagogy, but often positioned themselves as "leaders of public opinion", criticized them. As a result, all research institutes were renamed, the heads were replaced; moreover, some scientific institutions were headed by persons without a scientific degree at all. Their main "advantage" was that they had nothing to do with the former Academy of Pedagogical Sciences .

Almost four decades have passed since then, but we have to admit with annoyance that if anything has changed in the relations between theorists and practitioners, it's only for the worse. By the worst, we mean that, in comparison with the late Soviet years, the production of theoretical pedagogical literature is currently completely insufficient. If something is printed, it's usually in tiny editions. There is undoubtedly something published in every Russian region, and often very valuable. But this valuable information isn't readily available, and most often it's not known at all, to nonresident colleagues of authors. These sad changes also apply to pedagogical journals, the print circulation of which has decreased hundreds of times. Their price for the end user, i.e. for the teacher-practitioner, has also increased many times.

It would seem that to a large extent these "disadvantages" are compensated by distribution of journals via Internet. But even here there is a problem: the vast majority of capital's pedagogical journals, unlike those published by regional founders, don't place their content in public domain, but offer their potential readers, i.e. exclusively teachers, to buy individual articles or an entire issue. The cost of purchasing just one article is usually no less than 300 rubles. How can we expect widespread innovations in the theory of pedagogy and educational practice?! Thus, we come to disappointing conclusion that a statement about an existence of a gap between theoretical research and practical teachers is undoubtedly true. In this case, how can a practical teacher rely on evidence-based pedagogy?! Teachers, as it's known, are a rather heterogeneous group, whose members differ in skill level, subject area of knowledge, work experience, and have many job responsibilities. Teachers must decide which evidence is of high quality and relevant to their student teachers. Given the rapidly expanding research literature, this isn't an easy task, and, as we have already noted, they may face various difficulties in promoting evidence-based practice [25, p. 256]. Thus, one of ways to support evidence-based practice in a field of teacher education is to support teachers in promoting evidence-based practice among future teachers [26, p. 183].

DISCUSSION

According to a number of scientists, evidence-based pedagogy (education) is becoming particularly important in the 21st century [27]. As already noted, evidence-based pedagogy, i.e. practice based on factual scientific data, is a special approach to making professional decisions and actions. It's aimed at improving the educational process through the conscientious, clear and reasonable use of the best available evidence (for example, empirical data on effective learning strategies) [28].

It also seems quite obvious that a closer correspondence between practice and modern research data improves professional results in educational practice [29]. Due to the growing availability of relevant and reliable scientific data in the field of education, there is an urgent call for training future teachers to understand and use this scientific data in their current and future practice [30]. From the perspective of popularizing evidence-based practice among practitioners, higher education plays a crucial role. Teacher training programs at the university are the best place for training and methodological equipment of future teachers, forming their ability to integrate knowledge from scientific sources and apply them in their practice.

Ongoing research has demonstrated difficulties in promoting evidence-based practice among on-the-job teachers, as they often face time constraints, limited access to research, or the school environment doesn't always provide support and opportunities for evidence-based practice [23, p. 790]. Therefore, addressing them at the stage of preparation for university admission seems to be crucial. University pedagogical education is an introductory stage of pedagogical education, which provides future teachers with a scientific basis for their pedagogical practice and is characterized by a close connection between educational research and educational practice [31]. This helps to lay the foundation for successful classroom teaching, forming the professional self-awareness of future teachers, their base of theoretical knowledge and providing them with their first practical experience [32].

Within the framework of university teacher education, the factual data obtained as a result of research in the field of education should become the basis for the content of professional education of future teachers. These scientific data may include theories of teaching and learning, empirical data on educational processes and interventions, as well as research in the field of didactics and curriculum studies [33; 34]. Domestic researchers, based on an analysis of the literature on the issue

of substantiating the effectiveness of evidence-based pedagogy, prove the prospects of using the concept of "students' health status" as the main component of evaluating the success of educational organizations, as well as the effectiveness of the pedagogical technologies used [35].

The authors identify several controversial topics related to evidence-based research and the evidence-based process of practical work: the principle of hierarchy versus the principle of pluralism in understanding evidence and methodologies; the need to include theoretical concepts and explanatory mechanisms of practice in evidence; the ratio of evidence obtained in external systematic research and expertise of a practitioner; the problem of assimilation and dissemination of scientific knowledge versus problems of coordination and cooperation of science and practice [21]. Recent efforts to improve the quality and availability of scientific research in education, coupled with increased expectations for the use of research in practice, demand new ways of thinking about connections between research and practice. The conceptual framework presented in this paper argues that increasing research in educational decision-making can’t be simplified to an issue of dissemination or of motivating practitioners to access evidence-based research but rather is a bidirectional problem in which characteristics of both the research and practice communities must be understood and addressed in order to strengthen ties between research and practice in education [36].

CONCLUSION

Thus, the purpose of our research, which consisted in revealing the content of a number of aspects of evidence-based pedagogy, by revealing the essence and content of this phenomenon, has been achieved. Evidence-based pedagogy, i.e. practice based on factual scientific data, is a special approach to making professional decisions and actions. It’s aimed at improving the educational process through the conscientious, clear and reasonable use of available evidence. At the same time, despite the prevalence of references to the evidence-based approach in teaching and evidence-based practices, especially in the English-language scientific and pedagogical literature, these terms themselves remain to this day in many ways something like "empty signs", for the meaningful content of which there is a scientific struggle, sometimes acquiring an ideological orientation. Due to the fact that the phenomenon of evidence-based pedagogy continues to be an actively discussed phenomenon in the literature, the need for further study and disclosure of its synergetic capabilities is obvious. Undoubtedly, research in this area will continue.

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