A STUDY MODEL OF COLLATING RUSSIAN AND IRANIAN EXPERIENCE IN THE FIELD OF DISTANCE LEARNING TECHNOLOGIES QUALITY

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Abstract

The relevance of this article is due to the active implementation of distance learning technologies in various countries having similar problems in distance education and accumulating positive experience in solving them. Among such issues is the quality of education in the context of distance learning, the ways and the effectiveness of which considerably vary. Therefore, this article is aimed at the study and collation of the quality of international distance education technologies. The leading method in the study of this problem is a simulation method allowing to compare and collate the quality of learning technologies used in Russian and foreign experience on the basis of similarity (both recognized and valuable experience and the experience of little importance for the countries) and specificity (as the experience in which the leading position is taken by one or other country). Comparative research of the scientific sphere is done on the example of selected scientific materials of Russia and Iran on the designated problem and scientometric analysis of internal databases for each country. The paper presents a statistical research model of international experience collation in the designated area, the appropriate research tools and the main findings of the comparative analysis of the quality assurance of distance learning technologies, including active application of standardization and quality control issues, quality indicators, quality criteria, distance learning / education, distance learning technologies that are typical for both countries.

Keywords: distance learning technologies, quality system in education, research model, international experience collation, statistical tools, scientometric analysis

Introduction

Relevance of the issue

The article is devoted to topical problems caused by active implementation of distance learning technologies, which in various countries have both positive aspects and challenges. Thus, collating the experience of different countries the scholars should reveal actual ideas, the distribution of which will allow the expected productive results. In the previous research papers the authors of the given article described aspects of distance learning technologies formation (Zamani, Abedini, Soleymani & Amini, 2012), as well as the experience of information-and-environment and logistical approaches (Vlasova, Kirilova &, Masalimova, 2015). Further investigation of the described issues require the development of statistically verified research models of Russian and foreign experience collation, allowing to make well-reasoned conclusions and recommendations in the field of distance learning technologies quality.

The main aspects of the study

The article focuses on the problems of education quality in distance learning context, the solution of which can vary considerably in different countries. It reveals two aspects: firstly, the authors' statistical research model of international experience collation (comparative study), secondly, the results of its implementation for the scientometric analysis of Russia's and Iran's achievements in the field of distance learning technologies quality. It should be noted that the given model is founded on the universal philosophical (Nurullin, 2013) and historical understanding (Newman, Ward, Smith, Wilson, McCrea, 1997), oriented on developing standards (Sharifzyanova, Shtreter & Nauryzbayeva, 2015) and the experience of comparative research (Kamalova & Zakirova, 2014), as well as standardized invariant schemes of objects analysis that are applied to different data (Razinkov & Latypov, 2007). On the basis of the proposed statistical research model there can be compared the achievements and experience in the science and practice of different countries.

The article describes the model and the results of terminology comparative analysis in the areas related to ensuring the quality of distance learning technologies implementation in Russia and Iran.

Methodological Framework
Statistical research model

The paper proposes the statistical research model aimed at the division of the analyzed data into the following categories: 1) evidence that the countries in question are similar, 2) data showing that the countries manifest themselves in the designated field differently.
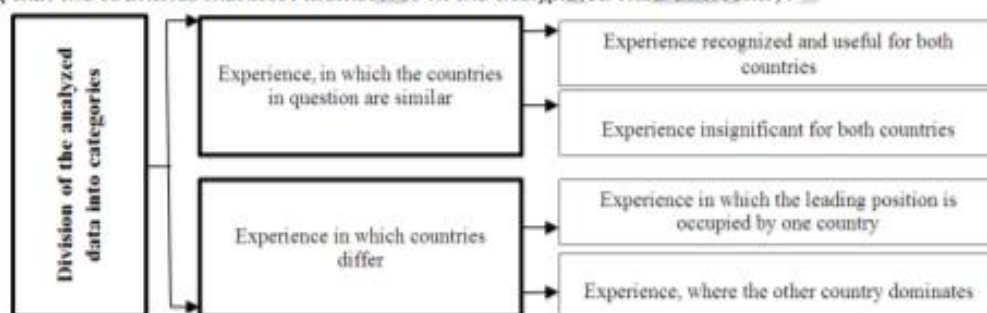
Figure 1. Categories of statistically significant data shown in the authors' statistical research model of international experience collation.

The general scheme of similarities and differences zones defined by the methods of mathematical statistics see in Fig. 1. The first category, respectively, includes: experience recognized and useful for both countries, as well as experience insignificant for both countries. The second category includes experience in which the leading position is occupied by one country, and experience, where the other country dominates.

This model was built in order to identify common and specific features of scientific research development and practical achievements in the field of training quality in the context of distance learning technologies implementation. Experience, in which the countries in question are similar, is based on global trends including the interest in the study and implementation of ways to ensure the quality of distance learning technologies implementation, which is due, on the one hand, to the development and implementation of distance learning technologies and on the other hand – to the increased interest in relevant quality systems. The experience, in which countries differ, is based on their history, legislation and the structure of their educational systems, as well as the level of information technologies and the established mentality, which determines the attitude toward education.

Research tools

For the given research model there were proposed and adopted the following rules forming the basis of research tools for collation, regulating the adequate inclusion of data into the specific category on the basis of statistically significant similarities and differences in the data obtained:

- comparable volume of the original samples of the studied materials;

- consideration of variations in synonymously similar concepts as a criterion to determine correctness of the formation of the main sets of terms;

- assessment of chronology and dynamics of the main synonyms and similar concepts emergence in the development structure of the investigated materials;

- reliance on relative statistical indicators of usage frequency of the studied term sets in the sample totals;

- assessment of the reliability of the studied data obtained by means of samples collation organized on the basis of keywords, titles of publications, abstracts, types of publications and full texts of the materials;

- consideration of completeness of compound terms coverage in literature and other studies.

Research sample

The study was conducted in the framework of data collation based on scientific works sampling and the results of the practical implementation of distance learning technologies.

For the analysis there were selected research and educational materials related to the designated issues and there was compared the usage of basic terminology groups in Russia and Iran. The described sampling was carried out to identify the specific features of the development of scientific researches and their inclusion in educational practice in the field of quality of distance learning technologies implementation in each of the studied countries.

The scientific interest in the study of the quality of distance learning technologies is, on the one hand, due to the development and introduction of technologies (Levina et al., 2015), (Yusupova, Podgorecki & Markova, 2015) (Biktagirova & Valeeva, 2013), (Heineckea, Milmanb, Washingtonc & Blasia, 2001), and on the other hand, the construction of quality systems and standards (Su White, 2000). Accordingly, the criterion to choose scientific and educational materials samples was their usage of terminological groups due, on the one hand, to the development and implementation of technologies, and on the other hand, to the construction of quality systems. The clarifying definitions were the reference to distance technologies and quality in the field of education.

Study of the basic terminology groups was based on content analysis of the use of terms in Russia, according to the data of «E-library», whereas in Iran on the basis of the electronic library «Irandoc». Orientation on countries' internal literature databases provided the scholars with the opportunity to study the wider variety of sources, including not only scientific but also educational literature. For the analysis there were selected the key phrases including the basic terms "quality" and "technologies", as well as clarifying definitions of "distance learning", "electronic resources".

During the practical implementation of distance learning technologies there was tested the realization of organizational and pedagogical conditions to ensure high-quality training. The studied groups of organizational and pedagogical conditions for ensuring the quality of training with the use of distance learning technologies are highlighted in the structure of the components of the educational system: the first group includes the conditions of goal orientation, the second group - the conditions of integrity of the educational content; the third one – the terms of quality assurance of forms, methods and means of training; the fourth group includes the conditions of quality assurance at the stages of monitoring, evaluation and feedback.

In the framework of the experiment the students attended classes conducted with the use of distance learning technologies. It was important to establish whether certain groups of conditions were equally important for both countries, or there was revealed a higher priority and their more successful implementation in one of the studied countries. Statistical aggregate of this part of the study is presented by the Russian and Iranian university students: there were selected 221 people, of which 110 students were from Russia and 111 from Iran. As a tool for data collection there were used questionnaires. Questions for these questionnaires were based on researches on the program of the Russian Academy of Education (Vlasova, Kirilova &,

Sabirova, 2015), studies of twelve-year program of the International Association of Distance Learning (iNACOL) and the Commission on Accreditation of local colleges and colleges of the lower stage (Accrediting Commission for Community and Junior Colleges). Questionnaires contained 64 questions, divided into seven blocks, the answers to which were given in accordance with the Likert scale. In Russia, the questionnaire was available during four months the students of Kazan (Volga Region) Federal University and students of the Academy of Social Education. In Iran, the similar questionnaire during four months was posted on the website of Isfahan University applying distance learning technologies.

The article presents the data obtained on the basis of statistical calculation Student's t-test for equality of averages. The given data allow us to claim statistically significant similarities or differences of relevant experience. On the basis of statistical results, characterized by a probability of more than 0.95 for the similarity of data there was taken the main hypothesis of the equality of averages, confirming statistically significant similarities between Iran and Russia. On the basis of statistical results, identified with a probability of less than 0.05, there was accepted the alternative hypothesis, confirming a statistically significant difference between Iran and Russia on appropriate indicators.

Results and Discussions

On significant similarities and differences of the Russian and Iranian terminology base

Let us explain the results of comparative study of terminology base, providing quality of distance learning technologies application in Russia and Iran.

The figure 2 shows the graph of the selected set of terms usage on the problems associated with distance learning technologies quality, where the X-axis gives the ordinal terms, sorted by particular circumstances, and the S axis gives the number of frequency of each specific terminological phrase.
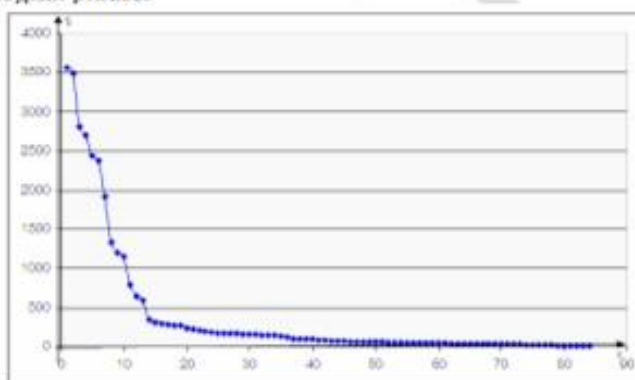

Figure 2. The graph of the selected set of terms usage.

It is particularly remarkable that 75% of key terminological phrases usage refers to the first 10 positions of the list. This indicates a sufficient correctness level of the main sets of terms formation.

Considering the evaluation of the materials development according to parameters of the dynamics and history, the analysis has shown that the differences have historical roots and are manifested in the fact that the scope of the quality of education and the sphere of distance learning technologies are more lasting and actively studied in Russia than in Iran. In accordance with the stated statistical research model there were identified the general trends of the studied areas, along with some differences as well, which are supported by a statistically significant similarities and differences, identified during terminological analysis, that was carried out with the support of the relative activity indicator statistics of selected set of terms usage based on the total amount of sample.

Analysis of the similarity based on the sample study of terminology base

Similarity is determined by common to both countries groups of terms, which have high level of research activity. In the area of similarity the following concepts were included:

standardization and quality management, system of distance learning (education). The collected data can be seen in Table 1.

Table 1. Data for terminological analysis collected on the basis of the compound terms occurrence in the title and keywords of publications under "Education"

Main group	Compound terms	Usage in Russia		Usage in Iran	
		before 2013	before 2015	before 2013	before 2015
	Totals on education quality problems	**9942**	**12683**	**7666**	**11289**
Quality	Quality standard	4871	6719	4049	7034
	Quality control	2292	2614	1456	1654
	The quality of training	2038	2464	1345	1532
	The quality of knowledge	418	519	214	634
	Quality indicators	323	403	435	602
	Totals on problems of technologies in education	**6736**	**8743**	**4275**	**5318**
Technologies	Distance learning	3968	5040	2207	2543
	Distance learning technology	1159	1578	1003	1323
	E-teaching materials	904	1280	561	758
	Technology of quality	705	845	504	694

As a rule, thought-out terms get the greatest usage, as well as terms that were included in textbooks and academic programs. Accordingly, certain compound terms are actively used in key words section and titles of modules in textbooks, and in the reference lists. This fact may be due to the terms being developed in the framework of educational process and active use in the students' academic studies. The use and analysis of such common issues in pedagogical science become less active with the time, as researches for the most part are completed.

On the other hand, there is a very little activity of a number of compound terms in both countries, including the following: the effectiveness of distance learning technologies, the model of distance learning and the quality of the educational environment.

**Table 2.** In both countries, special attention should be paid to the following aspects of the study.

Analyzed compound terms	Usage in Russia	Usage in Iran
The effectiveness of distance learning technologies	7	9
Models of distance learning	16	15
Quality of the educational environment	20	20

The rare usage of indicated terms is due to the fact that the relevant studies are mainly experimental. This is evidenced by its rare use in the academic literature and in students' work. Selective control of sets of terms dynamics indicates an increase of its significance for modern science and practice. Active citations show that they are widely used. In the near future it should be expected an active increase of interest to the respective issues. A similar situation is typical for experimental development of science and is detected in many inter-disciplinary researches.

Analysis of the differences on the basis of the research sample

Let's refer to the collation of terminological base that has got a specific spread in Russia and in Iran (Fig. 3). Statistical analysis showed that the following compound terms are widely used in Russia most of all: quality management, education quality management (2616 in Russia and 1654 in Iran), quality of training (2464 and 1532), distance learning (5040 and 2543), as well electronic educational resources (1280 and 758).
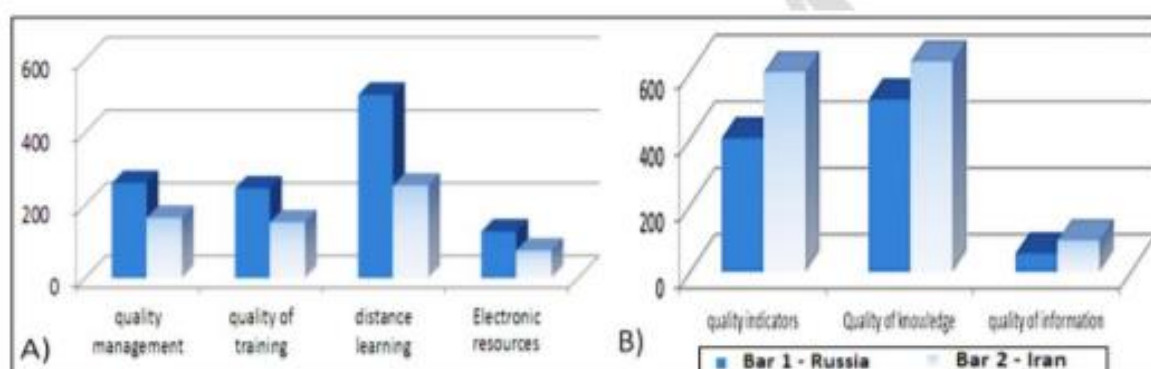
Figure 3. The main priorities of each country: A) Priorities in Russia, B) Priorities in Iran

Statistical analysis also showed that the following compound terms are used less active in Russia than in Iran: quality indicators (403 in Russia and 602 in Iran), quality of knowledge (519 and 634), and quality of information (56 and 95).

The interpretation of revealed terminological base specifics of Russia and Iran

Zones of differences need further interpretation from the point of solving the education quality problems and the use of distance learning technologies.

As for the quality problems, questions on education quality management are predominant in Russia, and they are solved on the basis of a well-developed theory of management. In Iran the questions on identification and the use of universal (standardized) quality indicators have got the greatest use, and consistent application of them can be extended to a number of educational institutions.

According to the problems of distance learning technologies there were identified specificity, which is linked to two major factors - the "openness" and "availability". These factors have different interpretations in the countries concerned. In Russia, the "openness" is mainly treated as readiness to change and improvement, and "availability" as access to affordable education not only anywhere in a large country, but at different initial individual level. In Iran, the "openness" is mainly treated from the point of open borders in entering the global educational community, "availability" - as the search for new methods of learning, appropriate and accessible to all.

Findings and Practical Recommendations

The collation enables to make a number of conclusions and recommendations which promote the development and transfer of productive experience at the international level. Firstly, for the Russian universities and research organizations it is recommended to continue and strengthen the positive research in the field of quality management of distance education, based on management theory. This experience is very interesting for other countries. Second,

the Iranian education should expand the use of universal (standardized) quality indicators, as well as build its productive transfer and adaptation at the international level.

For both countries there is identified special zone of active application on standardization and quality management, quality indicators, quality criteria, distance learning / education, distance learning technologies, as well as the area of perspective development of distance learning technologies effectiveness, modeling of distance learning systems, as well as the quality of education environment.

Conclusions

It should be noted that in this study it was also taken into account the materials to implement the research in the field of information (Reason, 1994).), general scheme of comparative research in related areas (Taylor, Francis, 2007), (Novik & Podgórecki, 2015) research experience in the quality of training sphere (The Orbit Report, 1998), (Nail, Artem, 2013), (Nuriev & Starygina, 2013).

In contrast to the studies presented above, this article carries quite coherent exposition of the issues raised and implemented on research model construction and its application to match developments in the quality of distance learning technologies.

The expansion of distance learning technologies in each country is described by both general world trends and specific characteristics. Russia launched a programmed learning about thirty years ago; during this process there was a necessity to overcome the incompatibility of the required software and technical equipment in the field of education and to minimize the initial lag in the field of information. This path has allowed Russia to accumulate a wealth of variable experience in development and implementation of automation in the educational process, a natural element of which was the use of distance learning technologies. Iran is making significant efforts to spread and develop distance learning technologies for the past ten years. The peculiarity of the Iranian history is to a high extent in its centralization of education quality management, using distance learning technologies. Selected invariant approach is focused on well-elaborated technological and substantive development, which is ubiquitous.

Accordingly, the prospects for further development of distance learning technologies involve a combination of invariant and variable content, forms and methods, providing on the one hand the standard requirements for all, and on the other hand individualization and accounting capabilities and preferences of the individual in the organization of training and management of its quality in terms of distance learning technologies. In this perspective of distance learning technologies spread, there is still a number of unresolved issues in both countries. All of this suggests the need for a mutually beneficial exchange of experience between Russia and Iran in the field of distance education.

The scientific novelty of the study is proposed research model, suggested tools, quoted analysis results of developments in the sphere of distance learning technologies quality, received on the basis of scientometric and statistical research achievements in science and in practice, carried out on the basis of a sample materials of Russia and Iran.

Proposed statistical model as a leading research method, as well as tools for comparison of experience, can be applied in the analysis of similarities and differences of other countries and in the research of international experience in other areas. Thus, the article demonstrates a focused and organized process of matching the achievements in science and practice, received by different countries according to categories of its generality and specificity. Generality category includes recognized and valuable experience, and the experience, which is of little importance for both countries. Specificity category includes the experience in which the leading position is occupied by one or another country.

The analytical tools, which provide matching process in the science and practice is revealed through the implementation of a number of rules, they are as follow: ensure the comparability of data volumes, reliance on the relative statistical characteristics, checking the reliability of data received, the account of variant groups of terms, orientation to the dynamics and activity of relevant experience formation in the science and practice. Comparative research

of scientific sphere was conducted on the example of selected scientific materials of Russia and Iran on the problems under study and its scientometric analysis based on internal databases of each country.

Among the results of the study there was revealed specific to both countries active zone of the following issues use: standardization and quality control, quality indicators, quality criteria, distance learning, distance learning technologies. The article presents the findings and practical recommendations related to the prospective development of distance learning technologies effectiveness, modeling of distance learning systems, as well as the quality of the educational environment.

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