

METHODS AND TECHNOLOGY FOR ASSESSMENT OF HUMAN CAPITAL OF A UNIVERSITY GRADUATE

Kharchenko L. N.¹, Abdulgalimov R. M.², Gulyakin D. V.³, Sorokina E. N.⁴, Kharlanova N. N.⁵, Magomedova R. M.⁶, Pergun O. V.⁷

¹North-Caucasus Federal University, Russia, ^{2,6}Dagestan state medical University, Russia, ^{3,4,7}Kuban State Technological University, Russia, ⁵Armavir State Pedagogical University, Russia.

Email: ¹asia@prescopus.com, ²michael.l@prescopus.com, ³peter.seliverstov@prescopus.com, ⁴editor@prescopus.com, ⁵russia@prescopus.com, ⁶michael.l@prescopus.com, ⁷peter.seliverstov@prescopus.com

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Abstract

Purpose: The article presents the author's approach to assessing the human capital of a graduate of a regional university. Emphasis is placed on the fact that the problem of assessing of human capital is especially acute for pedagogy, since the contribution of education to the formation of human capital is one of the determining factors, and the contribution of pedagogy to the study of the pedagogical aspects of this phenomenon is extremely small.

Methodology: The authors propose a methodology and technology for assessing human capital. In particular, it was proposed to use an integrated approach to the assessment of human capital of a graduate of a regional university, the essence of which is to add the absolute values of indicators of individual components of capital, and then based on the data calculate the relative indicator of the quality of human capital.

Result: The result of training and the main goal of improving the quality of training of specialists at a regional university will be to ensure the minimum deviation of the level of the human capital of the graduate achieved during the period of study at the university, from the level of human capital established by regulatory requirements.

Applications: This research can be used for the universities, teachers and education students.

Novelty/Originality: The content of the article presents a simple formula for calculating the relative indicator of the quality of human capital and a graph of the linear function of the ratio of the levels of achieved and normative human capital of a graduate of a regional university.

Keywords: *human capital, methods, technology for assessment of human capital, regional university, university graduate.*

INTRODUCTION

The analysis of the socio-economic processes occurring in our country ([Kapelyushnikov, 2012](#)) allows us to consider them as specific guidelines for the higher education system in managing research and training of personnel.

As the most important guidelines or trends in the development of university systems, in addition to the edge of the endless standardization process, it is allowed to distinguish the processes of regionalization and diversification of higher education and research. Diversification determines the diversity of modern universities in Russia, and regionalization strengthens the role of regional universities in reproducing of the quality of life in the region, on the disclosure of regional-cultural, sociogenetic functions of university education and science ([Kargieva, 2014](#); [Khmeleva, 2012](#); [Ghazanfarpour et al, 2014](#)).

Prerequisite knowledge, in this case, is such statements, such as:

- A regional university contributes to successful research activities, for example, by providing training for scientists and teachers, which, in turn, ensures the scientific and technical development of the region;
- The regional university participates in the creation of human capital in the region, which directly affects the accumulation of knowledge and, accordingly, the productivity growth of all factors of production in the region.

Consideration of the problem in such angle, in turn, implies an orientation of a regional university, on the one hand, to the development of the human capital of a specific region, and, on the other hand, making appropriate adjustments to the university's strategic goals.

Thus, the relevance of the research, which consists in identifying of features of the human capital assessment of students and graduates of a regional university, aimed at improving exactly the regional component of the training of highly qualified personnel.

The purpose of the published article is to focus on the main, in our opinion, result of higher education - on human capital formed (positive, neutral, negative) ([Matveyeva, 2015](#)) during the years of training, and discuss the methodology for assessing human capital of a graduate of a modern regional university.

It should be noted that in the scientific literature, researchers of the ongoing changes in the economy point out the urgent need and importance of studying the phenomenon of human capital ([Brick, Goreltsev, 2014](#)). Particularly, economists and sociologists argue that education has an impact on all components of human capital, therefore, investment in education is one of the most important and justifiable types of investment ([Karmazina, 2014](#)). The knowledge enshrined in human

capital and technologies is thus the potential for future productivity, economic growth and scientific research ([Kapelyushnikov, 2012](#); [Zare & Zade, 2014](#); [Peres et al., 2018](#)).

But, this problem is especially acute for pedagogy, since the contribution of education to the formation of human capital is one of the determining factors, and the contribution of pedagogy to the study of the pedagogical aspects of this phenomenon is extremely insignificant.

We note the fact that at the state level, for example, in the Strategy for the Scientific and Technological Development of the Russian Federation until 2036, in the list of the main areas and measures for implementing the state policy in the field of the scientific and technological development of the country, the direction “Human Resources and Human Capital” in the first place (13).

The presented arguments reinforce the practical orientation of researches of human capital and give them even greater relevance.

METHODS

To obtain the primary data on the problem under consideration, which is the basis of the content of this article, the content analysis methodology was used, which included:

- The study of scientific literature (more than 30 sources) and some strategic government documents (in particular, the Presidential Decree "On the Strategy of Scientific and Technological Development of the Russian Federation"), containing information on the state of human capital of young people and students and the prospects for its development in the system of higher education in Russia.
- Conducting of direct surveys of students (140 people), teachers (65 people) and managers (34 people) of universities, aimed at identifying of respondents' ideas about human capital, the possibility of its assessment and the formation of educational tools;
- Analysis of the results of pedagogical observations of the authors of the article, teachers of universities, aimed at assessing the human capital of students, manifested in learning activities, in behavior;
- Statistical processing of the data obtained as a result of surveys and observations, for comparing of them and determining the significance and prospects of developing of evaluation procedures and measuring of the human capital of students and university graduates;
- Selection and formation of the content of the article based on the results of the analysis of the literature and the processing of the obtained data, discussion and agreement by the authors of the scientific text.

RESULTS AND ITS DISCUSSION

In the process of the analysis of scientific literature, the authors found that researchers view: “people as wealth, which can be increased through investment”, “human capital, like health, knowledge, culture, and personal freedom”, that “human capital is, first of all, basic psychological abilities of a person, such as vitality, work efficiency, ability to innovate and ability to learn”, that “education is a special element of human capital and cultural and ethnic characteristics, general education, vocational education, key qualifying qualities are distinguished as its main components”, as well as the fact that in the modern world “knowledge turns into a key resource, the main productive force and they are pushing aside traditional economic resources — capital, labor, land”.

The studying of the literature and the data obtained as a result of surveys revealed a contradiction, on the one hand, scientists are unanimous in the opinion of the enormous impact of human capital on the life of society, state and personality ([Markaryan, Kharchenko, 2017](#); [Hilai, 2018](#)), on the other hand, there is an underestimation by employers, organizers and managers of education at various levels, teachers and university students themselves on the other hand, there is an underestimation of the importance of the formation in future specialists of personal and professional qualities, which together constitute human capital.

It was also revealed that at present, large regional universities, such as, for example, federal and flagship universities, project themselves as high-tech educational organizations, focusing primarily on the regional and, in many ways, diversified market of educational and research services ([Gonik et al., 2016](#); [Bachiev, 2017](#); [Ameen et al., 2018](#)).

The North Caucasus and Southern Federal Universities and the Don State Technical University, which has the status of a flagship university, can serve as examples of such regional knowledge-intensive educational organizations in the socio-economic complex of the Stavropol Territory and the Rostov Region, in which the authors of the article work and study.

At this stage of their development, these universities work out models of regional universities with multi-level tasks, develop established ones and are actively looking for new forms of integration into regional societies and economies, that, more than ever, it actualizes, raises the theoretical and practical significance of the studying of such problems, as ensuring of the quality of regional higher education and the quality of human capital, the formation of regional science, intellectual management of the regional economy.

The appearance of new functions in federal and flagship universities does not save, but, on the contrary, strengthens the attention of universities to the quality of training of specialists, which, overwhelmingly, will flow into the regional economy and society ([Wyrasti et al., 2019](#)).

From our point of view, the assessment of the human capital of its graduates, in which the proper place should be given to the regional component, can serve as an integral indicator of the quality of training of specialists in a regional university. This, in fact, is the author's approach to the assessment of human capital. The integral assessment of the human capital of a university graduate should be based on measuring the individual components of such capital, for example:

- The condition of health, which determines the possibility or impossibility of the graduate's professional activity in certain areas, as well as his readiness and ability to maintain his own health. The assessment of health capital can be carried out on the basis of objective medical indicators and subjective sensations of one's health ([Faggian, A., & McCann, P. \(2008\)](#)).
- The baggage of education accumulated by the time of graduation from the university, including not only the level of education or its quality but also the presence of additional specializations received by a university graduate during the period of study and demanded in the regional labor market. ([O'Leary, B. S., Lindholm, M. L., Whitford, R. A., & Freeman, S. E. \(2002\)](#))
- The presence or absence of professional experience by the time of graduation received during work practice or in the process of combining studies with work in regional organizations or enterprises ([Chien, C. F., & Chen, L. F. \(2008\)](#));
- The level of formation of the general culture, moral values of a university graduate, characteristic of a certain not only professional subculture but also the ethnocultural space in which the specialist lives and will work and transmitted through behavior ([Dorozhkin, E. M., Leontyeva, T. V., Scherbina, Y. Y., Shchetynina, A. V., & Pecherskaya, E. P. \(2016\)](#)).

In addition, such components of human capital as the level of intelligence, readiness for self-employment, social qualities of a graduate, his organizational skills, etc. can be assessed.

When adding up the indicators of individual components of the human capital of a university graduate listed above, we obtain the total value of its human capital, which can be expressed in points or percentages. Further, it remains for us to correlate the achieved value of the graduate's human capital with its normative value, which can be determined by the joint efforts of employers and representatives of the pedagogical community of a regional university, and thus calculate the relative indicator of the quality of human capital. The calculation formula will be as follows:

$Q = HCa/HCn$, where

Q - a relative indicator of the quality of human capital (can be considered as the quality of training) of a university graduate;

HCa - the value of the level of the human capital of a university graduate achieved as a result of training;

HCn - the value of the normative or given level of the human capital of a university graduate.

The result of the calculation is the achieved level of the human capital of a university graduate correlated with the normative or specified level and, if the resulting indicator is equal to or greater than 1, then the human capital is positive. If $HCa / HCn < 1$, then human capital is negative.

As a result of such calculations, feedback is found, allowing to make adjustments to the learning process in order to reduce the gap between the regulatory requirements for the level of human capital and its achieved level.

The deviation of the indicator of the level of human capital achieved by a university graduate from the indicator of the normative level of human capital can be expressed as a linear function, shown on the graph as a straight line (Fig. 1). The smaller the angle of deviation of a straight line from the axis of HCn, the closer the indicator of the achieved level of human capital, located along the axis of HCa, to the zero marks of the established normative standard.

FINDINGS

Thus, the results of this work allow us to draw the following conclusions:

- A regional university is a science-intensive educational organization of higher education, which seeks to integrate as much as possible into the economy and social sphere of the region, in order to ensure the reproduction of positive human capital;
- The measured components of the human capital of graduates of a regional university should contain elements of regionomorphism, i.e. to have a so-called "regional hue" in order to promote the employment and professional career of a young specialist;
- A relative indicator of the quality of human capital of a graduate of a regional university can claim the status of a key criterion in assessing the quality of training of specialists in the process of the university accreditation process.

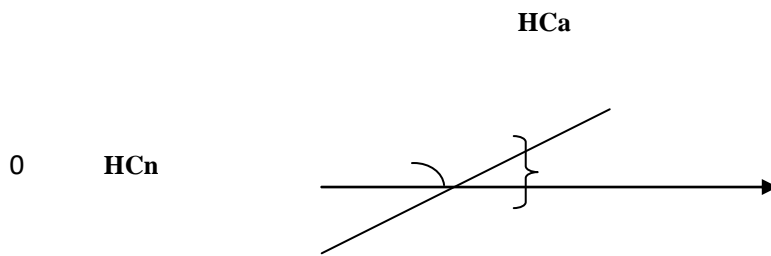


Figure 1: Graph of the linear function of the ratio of the levels of achieved and normative human capital of a graduate of a regional university

In this case, the main goal of improving the quality of training in a regional university will be to ensure the minimum deviation of learning outcomes or the achieved level of the human capital of a graduate from the level of human capital established by regulatory requirements [Wang, Y., & Yao, Y. \(1999\).](#)

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