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**SOCIAL CAPITAL OF THE UNIVERSITY: RESEARCH,
MEASUREMENT, ANALYSIS**

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Abstract

Empirical studies of a social capital as a significant factor in improving the efficiency of the universities are very important for the development of higher education. However, the practical measurement of the university's social capital and the evaluation of its impact on effectiveness is challenging. This paper discusses the problems of designing a theoretical model, measurement and analysis of the social capital of the university. This study presents the results of a pilot research aimed at the developing of methodology and tools for measuring and analyzing the university's social capital. Qualitative and quantitative methods of the analysis were adopted for this study. The units of the analysis included teachers, departments and institutes of the university. The results of the study showed that empirical researches of the impact of a social capital on the professional activities of the university teachers is associated with a large number of factors, which requires the development of special mathematical models based on randomized algorithms and statistics. The structure of a social capital of the university is very heterogeneous and diverse, in addition to internal processes, teachers are included in various external networks and groups, acting as an element of social capital of external actors: students, graduates, employers, expert communities, stakeholders, which significantly effects on their effectiveness. There is a general trend of decreasing confidence in the levels of the organizational hierarchy from the department to the university.

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Keywords: Social capital, trust, social networks, measuring social capital, the effectiveness of the University.



1. Introduction

The analysis of foreign and Russian researches shows that the human factor is crucial in improving the efficiency of the Universities, and that, in turn, depends on the efforts and results of the work of teachers, their competence, motivation, creative potential, innovation activity. As a result, the range of the research objects in the University management is expanding, and the analyzed pressure groups increasingly include teams of teachers, professional communities and networks. Numerous researches have shown that constructive social relations, the using of professional network resources, mutual trust and other parameters that we usually identified as social capital, increasingly determine the effectiveness of the University. Thus, the actual scientific and practical problem is the analysis of the structure of social capital, its description (modeling), evaluation of the degree of its impact on the performance of individual (teacher level) and group (Department, Institute, University) efficiency.

2. Problem Statement

Social capital is relatively new concept in management, psychology and sociology, research of this phenomenon a little more than 40 years. The relevance of the study of social capital due to its dual nature – on the one hand it is defined as a set of attributes of interacting individuals, and on the other hand – as a set of attributes of the environment in which individuals interact.

In the first case, social capital is defined as an available resource (accessed social capital - ASC), and its value is characterized by the capacity – the number of resources available to members of a certain social network (Lin, 2005). It is assumed that the greater the value of social capital, the greater the return on its use, although it seems to us not axiomatic, obviously, it is necessary to distinguish accumulated and mobilized social capital, which is not the same.

The second approach considers the mobilized social capital (MSC), determined by the degree of its direct use. Thus, ASC shows how much of the total resources can be used to obtain benefits for a group or individual, MSC is a real use of it.

3. Research Questions

The first systematic analysis of social capital and its first theoretical model were presented in the 1970s-1980s by P. Bourdieu, who treats social capital as a form of capital and indicates the possibility of its conversion into economic capital, since the accumulation of social capital requires certain investments, and its use can bring socio-economic benefits. Bourdieu associates social capital with the concepts of "trust", "norms", "reciprocity of relations", "human position in the system of social inequality". The key factor here is the concept of "social obligations" and "responsibility". Bourdieu notes that the accumulation of social capital involves the establishment of social relations on the basis of continuous series of exchanges, he allocates "exchange capitals": economic, cultural and symbolic, which can be converted into each other. The decisive condition for access to the total social capital is its exclusivity, i.e. the separation of non-members of the community and the exclusion of their participation in relations bonded with social capital (Field, 2008). Motivation of belonging to the group, solidarity with it are based

on dividends from the accessed social capital, i.e. social recognition means actual participation in the capital.

Coleman develops the concept of social capital on the basis of rational choice theory. He considers social capital as a certain kind of resource available to the actor and allowing him to have higher benefits from cooperative behavior compared to individual actions. Coleman considers social capital as a reflection of the intensity of social interaction, social capital grows and develops due to the activity of individuals.

Putnam uses the concept of social capital to investigate the reasons for the formation of strong and effective political institutions, he defines social capital as networks, norms and trust and as the intrinsic value of social connections. He uses the concepts of "bonding" and "bridging" social capital. The first means the relationships that bring benefits to a limited number of persons. The second type involves interactions that are beneficial to society in general, it is "cosmopolitan" unit, it connects members of different groups and expands the scope of mutual exchange. According to Putnam, it is necessary, first of all, to accumulate the "bonding" social capital, i.e. to build social interactions that eliminate gaps in social relations.

Fukuyama defines social capital as a level of mutual trust between members of society that contributes to effective economic development. He believes that the basis of the formation of social capital is the ability to communicate, depending on the similarity of the value system.

Modern foreign theories of social capital demonstrate the latitude of its application in the management of the University. There are topics related to the analysis of the social capital of the University through the representation of the relationship of its stakeholders in social networks (Akopova & Chernyavskaya, 2014), the level of professionalism of teachers, the development of corporate training programs (Apevalova, Gromova, Pasholikov & Trofimova, 2018), etc. In general, there are several applications of the concept of "social capital" to the management of the University.

1. The definition of social capital in the direct context of University management is discussed in modern literature rarely. The most detailed studies are presented by D. Halpern, R. Russ Kenneth, S.A. Hamzah, Ah. Mazda Hussin, Sh. Stevens, N. Patel, L. Hong, Zh. Jean, G.S. Sanghera, S. Thapar-Björkert, U.R. Markowska-Przybyla, M. David, J.A. Bennett, H.L. William, L.J. Baker, S.M. Maram, B.V. Mohammad, L. William, etc.

2. The influence of social capital on the quality of education is studied by Ed. Sales, D.L. Goetsch, S.B. Davis, B. Arogyaswamy, R.P. Simmons, M.J. Schmoker, R.B. Wilson, St. Fellowes, R. Bhanot, etc.

3. The analysis of value systems as an element of social capital is made A. Hazeri, B. Martin, T. Woodall, A.M. Serban, Jing Luan, A. Hiller, S. Resnick, T. Copeland, T. Koller, J. Murrin, S. Panda, D. Warner, D. Palfreyman, Th.R. Bailey, K.L. Hughes, D.Th. Moore, M. Sarrafzadeh, etc.

4. The influence of social capital on the effectiveness of the University is studied in several aspects: methods based on the radius of trust (variations of the "method" or "formula" Fukuyama), indexing methods, research methods of the World Bank (SOCAT). This, in particular, such studies as:

- community maps illustrating the state of social assets and the quality of services provided by the University (Klochkova, Volgina, Dementyev, & Klochkov, 2016);

- observation of group dynamics and team-building processes;
- analysis of the positive and negative impact of social assets on the activities of the University (Leontieva & Ababkova, 2018);
- criptive models of formal and informal communities in the University (Alexankov, Trostinskaya, & Pokrovskaaia, 2018);
- case studies of team projects;
- institutional diagrams of the relative impact and accessibility of social capital;
- institutional diagrams of the network relations within the University community (Shipunova & Berezovskaya, 2018).

The development of the concept of social capital in the Russian science is connected with the works of O.A. Basalaev, M.B. Vasilyev, A.I. Grishchenko, A.O. Epanchintsev, L.S. Zhgoon, A.T. Konkov, D.V. Krotov, S.V. Tvorogova, M.S. Utina, M.J. Fasba, V.V. Shaposhnikova, A.V. Uyrakov, etc. The attention of the Russian authors, such as E.M. Avramova, E.T. Vorozheykina, G.V. Gradoselskaya, S.I. Doluckaya, L.A. Kolesnikova, V.V. Radaev, V.L. Rimsky, L.V. Strelnikova, P.N. Shikhirev, etc., focused on the conceptual apparatus and research traditions and methodological approaches of international sociology. Some works by D. Stark, O.P. Fadeeva, T. Shaninare etc., are devoted to the analysis of a social capital in the informal economy. Some works describe the impact of social capital on various aspects of society: A.T. Konkov, N.E. Tikhonova, A.Y. Chepurensko, etc. Basically, Russian scientists focus on the processes of a social capital accumulation, considering them primarily through the study of the phenomenon of trust and a network of mutual support.

4. Purpose of the Study

The main discussion question in the definition of social capital is whether it is a public or an individual benefit. Most researchers consider that social capital is associated with the support of relations and it is based on “give and take” (Lin, 1986). Therefore, social capital cannot be a purely personal benefit (Grootaert, 2002). However, it can be used for both public and individual purposes. However, in this case, the attachment and the result are separated. In this regard, there is a "free rider problem". Moreover, actions aimed at increasing individual benefit can have negative consequences for public purposes. According to Coleman, people enter into relationships out of interest in resources controlled by other people, and are willing to cooperate because they need such support and, in this cause, individuals do not have an essential need for sociality. In other words, Coleman comes from a negative philosophical and anthropological interpretation of man as a subject with a deficit of sociality. Unlike Bourdieu and Coleman, who attribute social capital to personal resources, Putnam considers it as a public benefit. He emphasizes the positive effect of norms, because stable relations and constant cooperation guarantee feedback and the preservation of culture, which gives society social capital that cannot belong to only one person.

Equally important and challenging research issue is the problem of measuring social capital. The main difficulty here is an operational description of the structural elements of social capital, such as

"community", "network", "communication" (Ababkova, Pokrovskaia, & Trostinskaya, 2018), etc., the selection and measurement of the properties of these difficult-to-formalize constructs.

The main problem of empirical research of social capital is its multidimensionality. For example, the complexity of the consideration of social norms is due to two reasons: first, there is practically no work describing the mechanisms of using social norms in the formation of social capital. Second, the impact of social norms on the accumulation and use of social capital is ambiguous. The same characteristics of norms may indicate both a high and a low value of social capital, depending on the orientation (valence) of these norms. Measuring social capital solely by formal criteria and quantitative characteristics of norms can lead to a shift in estimates.

The multidimensionality of social capital is also manifested in the presence of different levels and units of its analysis, which requires the development of quite complex tools for differentiating these levels, clustering of the studied objects and carrying out the convolution of individual indicators into an integral index of social capital, which can vary significantly in individual studies depending on the choice of private coefficients and methods of their aggregation.

Another problem of empirical research of social capital is related to the dynamism of its characteristics and the simultaneous nature of their measurements. The structure and configuration of social capital, both in relation to the attributes of the individual included in social networks and in relation to the attributes of these networks, is constantly changing, which leaves its researchers no choice but to compile indices of social capital on the basis of very approximate and conditional indicators. Moreover, the elements of social capital exist in such different economic, political and cultural contexts that their comparability is more surprising than justifiably.

Next problem is the choice of adequate methods of research and measurement of social capital. Based on the research of Konkov (2006), we can talk about two main positions regarding the possibility and methods of measuring social capital. According to the first of them, social capital, interpreted in terms of relations and behavior of network participants, can be measured directly, while its empirical indicators are the characteristics of these relations and behavior. Based on the second position, social capital is a function of social structures (social networks and relations), so it can not be measured directly, because its indicators are the systemic properties of social networks and integrative results (common and individual), the achievement of which they make possible. Thus, it seems legitimate to define one of the directions of empirical research of social capital as quantitative, and the second direction, based on the assessment of indirect indicators, to correlate with qualitative methodology.

A number of authors note the problems of ensuring the quality of diagnostic tools in the research of social capital. Some of them, f.e. Banner and Carpenter, conclude that there is no universal method for measuring social capital, and that the choice of tools depends entirely on the research objectives and data characteristics. The common problems encountered in the study of social capital are presented by Jeffrey Carpenter (2002).

5. Research Methods

In general, it should be recognized that, for all the diversity of approaches, the most commonly used measures of social capital are trust, social communications and relationships in intra-group or social activities. The most often used in social capital studies are surveys.

Regular surveys as method of studies of the social capital of the University can serve as a feedback tool in the management of universities and, perhaps, in the management of higher education in general. In the first case, they support organizational stability, in the second option, they accompany the processes of innovation and serve as their operational correction for moving to the specified performance indicators.

Thus, within the framework of conceptual models of sustainable development, sociological support of real responses of the system can be a tool of management reflection, it states the behavior of the University community, the team of teachers as a "social body" of the University and as a managed object, and as a collective subject of these processes. By means of sociological surveys it is possible to create and correct the "road map" of transformations. Of course, this is a research type of work that requires a deep analysis of the elements of social capital such as trust, interactions, values, attitudes, the ratio of formal and informal regulatory systems, etc.

In other situations, where the purpose of management is to ensure the stability of the object it requires another social information. First of all, it is a description of the object of management: the description of the University community as some society, the preparation of its social portrait and a set of sociological, socio-psychological, socio-cultural measurements to identify and timely solve problems, to satisfaction actual needs of the academic community, that sign about the state and dynamics of the main working processes of the University. In such studies, methods and techniques should be standardized, and the results should be interpreted in certain conceptual models with high explanatory ability.

Thus, in studies of the social capital of the University, surveys measure and explicate the "response" of the educational system to the management impact, this allows to adjust them and prevent the growth of problems leading to more serious dysfunctions.

If we proceed from the extensive practice of sociological research in universities, their purpose, practical, utilitarian goals are somehow defined and understood by the management of universities (Sokolova, Pylkin, Stroganova, & Antonian, 2018). However, we undertake to argue that this is not the last stage in the system of goals that such studies can serve. There are other, strategically more important considerations that encourage this kind of work. We are talking about the internal logic of self-development of the University as a local educational structure (Zakharova & Krasnoschokov, 2016), as a socio-professional and socio-cultural organism with the potential and resource of self-organization and self-management. It is no coincidence that the management of universities, as a rule, with great interest acquainted with the results of such studies, regardless of how it then uses them. And even if it does not use them directly, it still experiences their influence, clarifying the mental image of the controlled object.

In other words, sociological research that reveals opinions, moods and assessments of the University community has a mission of self-knowledge, building and constant refinement of its identity in the competitive environment of other agents of the educational ecosystem. It is obvious that such an understanding increases the status of social capital studies and puts high demands on their methodology.

Currently, the process of standardization of research of social capital of universities is far from complete. That is the reason to talk about such studies, when we direct our analysis to the creation of procedures and techniques not only for utilitarian "practical result", but in order to get another competent description of the socio-organizational system of the University, its ability to form, accumulate such an important resource to improve the efficiency of its own activities as social capital.

6. Findings

The measurement of social capital was carried out by means of two specially designed questionnaires, one of which determined the level of trust, the other – the qualitative and quantitative characteristics of relations, while questions aimed at the analysis of value systems were present in both questionnaires. The phenomenon of social trust was studied in two dimensions – "horizontal" - within the networks of teachers' relations with each other and with the external environment and "vertical" – the relationship of teachers and University administration. The level of trust was assessed in relation to the management of the University, Institute, Department, as well as in relation to colleagues. In addition, respondents were asked to express their views on the compliance of the evaluated persons with a certain set of moral and ethical standards. The same set of standards was used for self-assessment of respondents, which also included the determination of the respondent's readiness to help others and the level of comfort in communicating with management and colleagues. To improve the validity of the data, the questionnaire did not require the mandatory indication of personal information about the respondent.

The results of the study showed that the teachers, who demonstrate the highest indicators of the effectiveness, has the least trust to the administration of the University. The Departments with average effectiveness show the maximum loyalty to the University. The Department, which demonstrate the lowest effectiveness indicators, show the average level of loyalty. In general, teachers appreciate the professionalism of the management and its decency, but they do not feel real support from it. The teachers are least satisfied with the level of communication with the top-management of the University.

There is a congruence of assessments that the teachers put the University and the Institute management on a significant part of the indicators, however, in general, the estimates of the Institute management are 0.2-0.7 points higher on all indicators. The lowest assessment to the Institute administration exhibited by teachers of the Department with the highest effectiveness indicators.

Estimates data of the Department management indicate the polarity of trust, with relatively neutral assessments of teachers of the Departments with low rates, there is a high level of trust to the head of the Department, showing the best results, and extremely low – to the head of the Department with average effectiveness. Teachers note subjectivity in judgments and insufficient consideration of their opinions in decision, but the level of personal relationships is much higher than with the administration of the Institute and the University, which is expected to fix a closer contact of teachers with the heads of Departments than with top-management.

With a relatively neutral assessment, which teachers of Departments with average effectiveness put their colleagues, a high level of confidence to colleagues show teachers of the Department with the highest effectiveness, the least confidence to colleagues is typical for teachers of the Department with the lowest effectiveness indicators. At the same time, in general, the obtained indices of social capital

indicate a fairly high level of intra-departmental trust. The assessment of the level of interdepartmental trust showed that teachers have a low willingness to share their ideas and knowledge with others, the greatest degree of trust to colleagues from other Departments is demonstrated by teachers of the Department with average effectiveness, showing moderately restrained attitude to colleagues within the Department and neutral – to the management of the Institute and the University, the teachers of the most effectiveness Department showed the lowest level of trust to the management of the Institute and the University and the most positive attitude to colleagues in their own Department. The highest values (5.99 - 6.23) are attributed by teachers with confidence in themselves indicators of self-esteem, which are almost identical for all Departments and do not have a strong spread.

Analysis of the data shows that the degree of trust to management decreases when the level of organizational hierarchy increases. There is only one exception in this general rule: at the Department with average effectiveness indicators, the level of confidence to the management of the Institute is higher than to the management of the Department, which has the lowest (4.23) value for all the Departments.

Thus, the results of the study show that the highest level of trust is observed between the teachers within the Department and the lowest – teachers to the management of the University.

Data processing of the empirical study gave a standard deviation of less than 0, which demonstrates the lack of variability of responses. Median, mean and mode differ for all Departments no more than 0.4, which indicates the normality of the distribution. The coefficient of asymmetry in the Departments is less than 0.3, so the distribution can be considered symmetrical.

The next stage of the research was to analyze the correlations of social capital and the effectiveness of group activities using the "atomic" values of the answers. Contrary to our hypothesis, the analysis revealed a negative correlation between effectiveness indicators and the integrated confidence index. We made an additional attempt to investigate correlations using only partial indicators, but the result was similar. This fact has become very unexpected and difficult to explain on the basis of the classical model of social capital, in addition, these results are poorly consistent with the data of similar studies, therefore it requires more in-depth analysis and additional research.

Because our hypothesis about the positive influence of the value of social capital on the effectiveness at the Institute and Department level was not confirmed, it was decided to verify the existence of such a relationship at the individual level (the level of the teacher). The data showed that teachers with the highest level of individual effectiveness express the least degree of confidence to the management of the University, while all of them have a high index of professional and social significance, which is determined by the number and polarity of their connections with other teachers, as well as the number of connections outside the University.

The data showed that most effective teachers have a high level of interaction with each other, which suggests the existence of an informal professional and social group (network) with its inherent social capital of the closed type, a high index of social capital and equally high group effectiveness. Membership in this group (access to its social capital) directly and positively affects the individual effectiveness, and the presence of such a group has a significant impact on the effectiveness of the Departments and the Institute as a whole.

7. Conclusion

- Study of the impact of social capital on the professional the activity of University teachers is associated with a large number of factors, which requires the development of special mathematical models based on randomized algorithms and statistics.
- The structure of social capital of University is very heterogeneous and diverse, in addition to internal processes, teachers are included in various external networks and groups, acting as an element of social capital of external actors: students, graduates, employers, expert communities, stakeholders, which significantly effects on their effectiveness.
- There is a general trend of decreasing confidence in the levels of the organizational hierarchy from the Department to the University. At the same time, the data indicate that the strongest negative impact on the group effectiveness has a low index of confidence to the management of the Department.
- Local research of social capital within the boundaries of a separate Institute ore several Departments does not provide reliable and valid data, it is formed poor information base for comparative analysis and search of correlations.
- The study showed a low interest of teachers to participate in such studies, the share of those who participated in the survey was only 35% of the teachers. This requires the use of special mathematical tools to construct confidence intervals, for example, a modified sign-perturbed sums method.
- The activity of formation and accumulation of social capital cannot be exclusively self-organized, but needs purposeful and systematic management.

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