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Assessment of Employment Motivation of Remote Workers of the Higher Education System*

E.A. PondoFinancial University, Moscow, Russia
<https://orcid.org/0000-0002-4484-1982>**ABSTRACT**

The article proposes a methodology for assessing the level of motivation of a remote employee of an organisation. It includes surveying according to the developed author's questionnaire, aimed at assessing the motivation of this group of employees depending on economic, digital, and socio-psychological factors and environmental factors; calculation of the motivation index, which allows identifying the most significant aspects of influence. The technique has been tested on the example of higher education institutions due to a considerable proportion of teleworkers in these organisations. As a result, the author revealed the most significant impact on the motivation of remote employees of educational organisations of various kinds of material incentives.

Keywords: telecommuter; higher education institutions; digitalisation; labour motivation; index method

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INTRODUCTION

In the current context of the knowledge economy and the digitization of social relations, the development of any State is impossible without highly qualified specialists. In this connection, the development of higher education, including through the provision of higher education institutions with professional staff with a high motivation for teaching and research activities, assumes special significance, which increases significantly as a result of the accelerated transition to a remote format caused by the spread of a new coronavirus infection COVID-19. This is evidenced, in particular, by the data obtained by the author during the monthly monitoring of the hh.ru job search site between 2019 and 2021, which was aimed at identifying industries with the greatest need for remote employees and showed that the education sector had entered the top 5 sectors of the economy in terms of job placement by employers.

It should be noted, however, that distance work is a relatively new phenomenon and the influence of the digital environment on motivation processes has not been sufficiently studied to date.

The purpose of this paper is to assess the level of motivation of distance workers using the example of institutions of higher education and to identify factors, which have the greatest incentive effect on the performance of their work functions in a remote employment format.

A review of the current scientific work of domestic and foreign scientists led to the conclusion that there is a sufficient number of studies in various branches and economic activities that address to varying degrees the measurement of motivation and job satisfaction (for example, these papers [1–4]). In the area of personnel management, however, should be noted these papers J. P. Wiegand, F. Drasgow, J. Rounds [5],

G. Steffgen, P.E. Sischka, M.F. Henestrosa, [6], S. Jha, [7], L.G. Pochebut and O.E. Koroleva.[8] These studies deserve special attention from the perspective of authors' approaches to scientific tasks such as:

1. Description of potential mismatch in terms of job equivalency, performance satisfaction and productivity.

2. Characterization of several types of voice behavior: flexible voice representing the category of workers who agree with the majority; defensive voice that allows the worker to defend himself; pro-social (constructive) voice that creates a pool of altruistic types of employees capable of producing constructive and creative proposals for the benefit of other employees of the organization.

3. Monitoring of changes in the labor market and their impact on the working conditions of the worker, which led to the development of a series of indicators of work quality, including indicators of psychosocial working conditions.

In addition, it's necessary to mention articles devoted to the study of the relationship between job satisfaction and productivity and examining the relationship between staff development and organizational equity in health, on the grounds that, like education, the sector is a budgetary area. Here the papers should be noted C. Blanchard, A. Baker, D. Perreault, L. Mask, M. Tremblay [9], B. Pungnirund [10], O.A. Lasebikan, O. Ede, N.N. Lasebikan, U.E. Anyaehie, G.C. Oguzie, E.D. Chukwujindu [11], C.C. Falguera, J.A.A. De los Santos, J. R. Galabay, C. N. Firmo, K. Tsaras, R. A. Rosales, L. J. Labrague, [12], E.L.A. Matsumoto-Takahashi, P. Tongol-Rivera, E. A. Villacorte, R. U. Angluben, M. Jimba, S. Kano.[13]

The studies identified are important in examining the assessment of prospects for the use of core human resources management practices that can improve staff efficiency. The



flaws of these papers include a lack of analysis of the factors affecting the employee's job satisfaction from the perspective of the influence of the external environment, as well as a lack of attention to economic factors.

And it must be noted the paper A.G. Tyurikov, O.S. Borovinskikh, K.A. Golubeva, D.A. Kunizheva [14], on the analysis of the quality of educational services through the evaluation of the list of basic personal, professional and universal competences acquired already in the course of education. The methodology of the study is to conduct a survey of teachers and students, employers and graduates, and a content analysis of the requirements for vacancies in the labor market, followed by an index method on the basis of which a scale has been formulated and presented to help determine the level of competence.

Thus, a critical analysis of the work shows that a significant number of studies are available on the subject matter, however, should be noted that there is a lack of a comprehensive approach to assessing staff motivation, as well as a low level of development of the topic of assessing the motivation of remote employee.

MATERIALS AND TECHNIQUES

The survey questionnaire was developed by the author and is aimed at assessing the impact of 4 sets of factors (economic, digital, socio-psychological and environmental factors) on the motivation of the organization's staff in the context of an active transition to a digital, remote format. The selection of influencing factors was based on a review of theoretical works of domestic (database of the E-library and Cyberleninka; sources located in the Russian State Library) and foreign authors (citation and analytic bases Scopus and Web of Science), and analysis of cases and taking into account current events that have a significant impact

on the investigated issue (COVID-19 – Coronary Infection Pandemic).[15]

The responses to the questionnaire were formulated in such a way that the data obtained (which allows for the analysis of disparate indicators not to be added¹) could be used to calculate the motivation index. Thus, the responses are consistently graded [from the factors that most strongly influence the level of motivation of the distance worker to those that have the least influence (coefficients from 1 to 0)] or equal in importance so that the respondent chooses something appropriate to his or her perception (coefficients from 6 to 1). The question sheet also contained synonymous questions for the camouflage of the research objectives required to form, trace and receive a candid response to the topic claimed (*table 1*).

Then, for each group of questions, a formula was developed to calculate a private motivation index for each of the questions in the study group (1):

$$i_{\text{individual } k} = \Sigma A_n * m_n, \quad (1)$$

where A_n – coefficient values assigned to responses;

m_n – percentage of respondents' responses converted to numeric value up to thousand;

n – number of responses to the questionnaire;

k – number of questions included in the research group of factors.

The next step was the calculation of a private motivation index for the group of factors studied (2):

$$I_{\text{individual}} = \Sigma i_{\text{individual } k}, \quad (2)$$

where $I_{\text{individual}}$ – general index for a group of factors;

¹ URL: <https://finzz.ru/indeksnyj-metod-analiza-primery-kratko.html>.



Table 1

Examples of questions and answers to be indexed

Number of questions	Example of a response to a question	Assigned coefficients	Note
Economic factors			
What do you find most appealing in remote work?			
5	Wage	6	The distribution of coefficients will depend on the response of respondents in an organization
	Cash reward	5	
	Monetary savings spent on way to and from work	4	
	Announcement of gratitude	3	
	Hours paid according to wage standards	2	
	Social, cultural and housing benefits	1	
Digital factors			
How has your work motivation changed as part of your transition to remote work due to the introduction of self-isolation due to the spread of coronavirus infection COVID-19?			
5	Significant increase in motivation	1	Distribution of coefficients doesn't vary according to respondents
	Slight increase in motivation	0.75	
	No impact on the level of motivation	0.5	
	Slight decrease in motivation	0.25	
	Significant reduction in motivation	0	
Socio-psychological factors			
Do you think that distance technologies motivate the most efficient job performance and also contribute to successful working contacts?			
5	Fully agree	1	Distribution of coefficients doesn't vary according to respondents
	Partially agrees	0.66	
	Partially disagrees	0.33	
	Totally disagrees	0	
Environmental factors			
Is working in a prestigious organization with high ratings an important motivating factor for you?			
5	Motivates and makes you feel important	1	Distribution of coefficients doesn't vary according to respondents
	Doesn't motivate much, but it's nice to work in a place like this	0.5	
	No, it's not an incentive to work for me	0	

Source: compiled by the author.

Table 2

Percentage distribution of answers to the question of the economic block for each organisation

Replies to the question asked		Distribution of respondents by organization, %		
№		A	B	C
	Economic factors			
1	Wage	37.5	28.1	29.7
2	Cash reward	26	33.4	26.8
3	Monetary savings spent on way to and from work	16.1	10	12.9
4	Announcement of gratitude	7.3	8.5	6.3
5	Hours paid according to wage standards	5.5	7.1	8.4
6	Social, cultural and housing benefits	3	5.5	4.6

Source: compiled by the author.

$i_{\text{individual } k}$ — individual motivation index for each of the questions in the research group.

A level scale was then introduced to allow:

1) distribution of the individual indices obtained by the degree of influence of the group of factors studied on the work motivation of remote employee in the high to low levels;

2) bring the different approaches used in determining weights of private motivation indices into a single measurement system;

The overall motivation index for remote employee was proposed to be calculated as the sum of the four private indices mentioned above (3):

$$I_{\text{total}} = i_{\text{econ}} + i_{\text{dig}} + i_{\text{s-p}} + i_{\text{ext}}, \quad (3)$$

where i_{econ} — index of the motivation of remote employee by economic factor group;

i_{dig} — index of the motivation of remote employee by digital work;

$i_{\text{s-p}}$ — index of the motivation of remote employee by socio-psychological group of factors;

i_{ext} — index of the motivation of remote employee by external environment influence.

The treatment of the index of the values obtained is also done within the level scale.

RESULTS

The author's questionnaire was distributed in September-December 2020 to distance workers from three educational organizations: Financial University under the Government of the Russian Federation, Moscow Automobile and Road Construction State Technical University (MADI), Moscow State University of Food Production.

Due to restrictions on possible publication actions, related to the confidentiality policy of the organizations participating in the survey, randomly assigned a letter value to the institutions of higher education being

Table 3

An example of calculating the motivation index of teleworkers by the economic group of factors for each of the organisations participating in the study

Nº	Organization	Calculation of an index of the motivation of teleworkers by economic results of work	Total for the organization	Total by industry
1	A	$(6 \cdot 0.375) + (5 \cdot 0.26) + (4 \cdot 0.161) + (3 \cdot 0.073) + (2 \cdot 0.055) + (1 \cdot 0.03) = 4.553$	$I_{\text{econ A}} = 4.553$	$I_{\text{econ/edu}} = 12.872$
2	B	$(6 \cdot 0.334) + (5 \cdot 0.281) + (4 \cdot 0.1) + (3 \cdot 0.085) + (2 \cdot 0.071) + (1 \cdot 0.055) = 4.257$	$I_{\text{econ B}} = 4.257$	
3	C	$(6 \cdot 0.297) + (5 \cdot 0.268) + (4 \cdot 0.129) + (3 \cdot 0.084) + (2 \cdot 0.063) + (1 \cdot 0.046) = 4.062$	$I_{\text{econ C}} = 4.062$	

Source: compiled by the author.

Table 4

The maximum and minimum coefficients obtained in the course of calculating the motivation index of teleworkers by the economic group of factors by organisations

Nº	Organization	max	min
1	A	2.25	0.03
2	B	2	0.055
3	C	1.782	0.046

Source: compiled by the author.

analysed (A, B, C), further used in this work to enforce secrecy policies and prevent leakage of information.

The survey conducted in designated organizations was a representative sample based on locally acquired information on the number of staff in a given entity. Respondents, who were interviewed, were professors, academics and administrative and managerial staff. A total of 847 persons were interviewed.

On the basis of a review of research studies on approaches to employee motivation and job satisfaction, the author concluded that economic factors were significant.

Respondents confirmed that the greatest influence on the motivation of workers in the remote form of work of the group of economic factors. Illustrate the calculation of the motivation index with the example of the private index of the motivation of remote workers for the group of economic factors (i_{econ}).

Percentage distribution of respondents to the first question of the economic cluster of the questionnaire in *table 2*.

For the subsequent calculation of the motivation index for the economic group of factors (i_{econ}) it's necessary to distribute

Table 5

Calculation of the size of the working part of the level scale by organisations

Nº	Organization	Formula for calculating the working part of the scale (V)	Amount of work part of level scale
1	A	$V = \max - \min$	2.22
2	B		1.945
3	C		1.736

Source: compiled by the author.

Table 6

Calculation of the size of the step between levels by organisation

Nº	Organization	Formula for calculating the step between levels (V шара)	Amount of step between levels
1	A	$V_{\text{шара}} = V/3$ (number of levels)	0.74
2	B		0.648
3	C		0.578

Source: compiled by the author.

the numerical coefficients between the respondents' replies in order of decreasing the coefficient value while decreasing the percentage of respondent's responses.

Distribution will be done by differentiating ratios between equally important responses to the questionnaire by economic group, therefore, it should be noted that in this case only the answer that has not been chosen by the respondents will be assigned a value of "0".

It should be emphasized that this action reflects the content and value of each answer to the question from the economic bloc, which is why the author chooses the whole value to be used in future calculations.

The maximum response rate that the largest number of respondents gave will be "6", and the ratio of the maximum to the number of responses will be the "average step". It should be noted, however, that although the maximum value has already been assigned,

it must be taken into account in the total number of replies in order to obtain a minimum coefficient not equal to zero: $6/6 = 1$.

The next step was the calculation of the index (table 3).

The results of the calculation showed that the overall index of motivation of remote workers by economic group of factors in educational organizations ($I_{\text{econ/edu}}$) is 12.872.

Then the maximum and minimum ratios of the remote employee motivation index for the economic factor group by organization were calculated (table 4).

The data allowed the calculation of the working part of the scale, which is the difference between the maximum and minimum numerical coefficients, results from the calculation of index of the motivation of remote employee by economic factor group (table 5).

The number of levels was then given and the step value was set as the ratio of the

Table 7

Values assigned to each of the three levels (high, medium, low) by organisation

Nº	Organization	Values assigned to each level
1	A	High degree of influence: from 1.51 to 2.25 Average degree of influence: from 0.76 to 1.50 Low degree of influence: from 0.03 to 0.75
2	B	High degree of influence: from 1.352 to 2 Average degree of influence: from 0.703 to 1.351 Low degree of influence: from 0.055 to 0.702
3	C	High degree of influence: from 1.204 to 1.782 Average degree of influence: from 0.625 to 1.203 Low degree of influence: from 0.046 to 0.624

Source: compiled by the author.

Table 8

Calculation of the general motivation index of teleworkers based on educational organisations

Nº	Organization	Calculation $I_{total} = i_{econ} + i_{dig} + i_{s-p} + i_{ext}$	Value
1	A	4.553+2.683+2.711+6.528	16.475
2	B	4.257+3.434+2.535+7.132	17.358
3	C	4.062+2.915+2.99+7.097	17.064

Source: compiled by the author.

working part of the scale to the number of levels. The number of levels was determined by the researcher. In the calculation of the defined index, the three-tier classification of index values was applied in this study: high, medium and low, indicating the degree of motivation of the work of the remote employee by means of the responses received by the respondents in the survey.

Calculate the size of the step between the levels (table 6).

The calculations made it possible to assign the following values to the levels indicated by subtracting the step between the levels from the maximum coefficient (calculated within the desired index) and the subsequent

subtraction of the step between levels from the previously obtained value (table 7).

The next step was to identify factors that, based on the results of the defined index, have a different influence on the motivation of the remote employees of the participating organizations.

The same calculation scheme was used to calculate the remaining private and general motivation index (table 8).

CONCLUSION

On the basis of the results of the calculation of the general motivation index, it can be concluded that the most motivated among educational organizations are employees

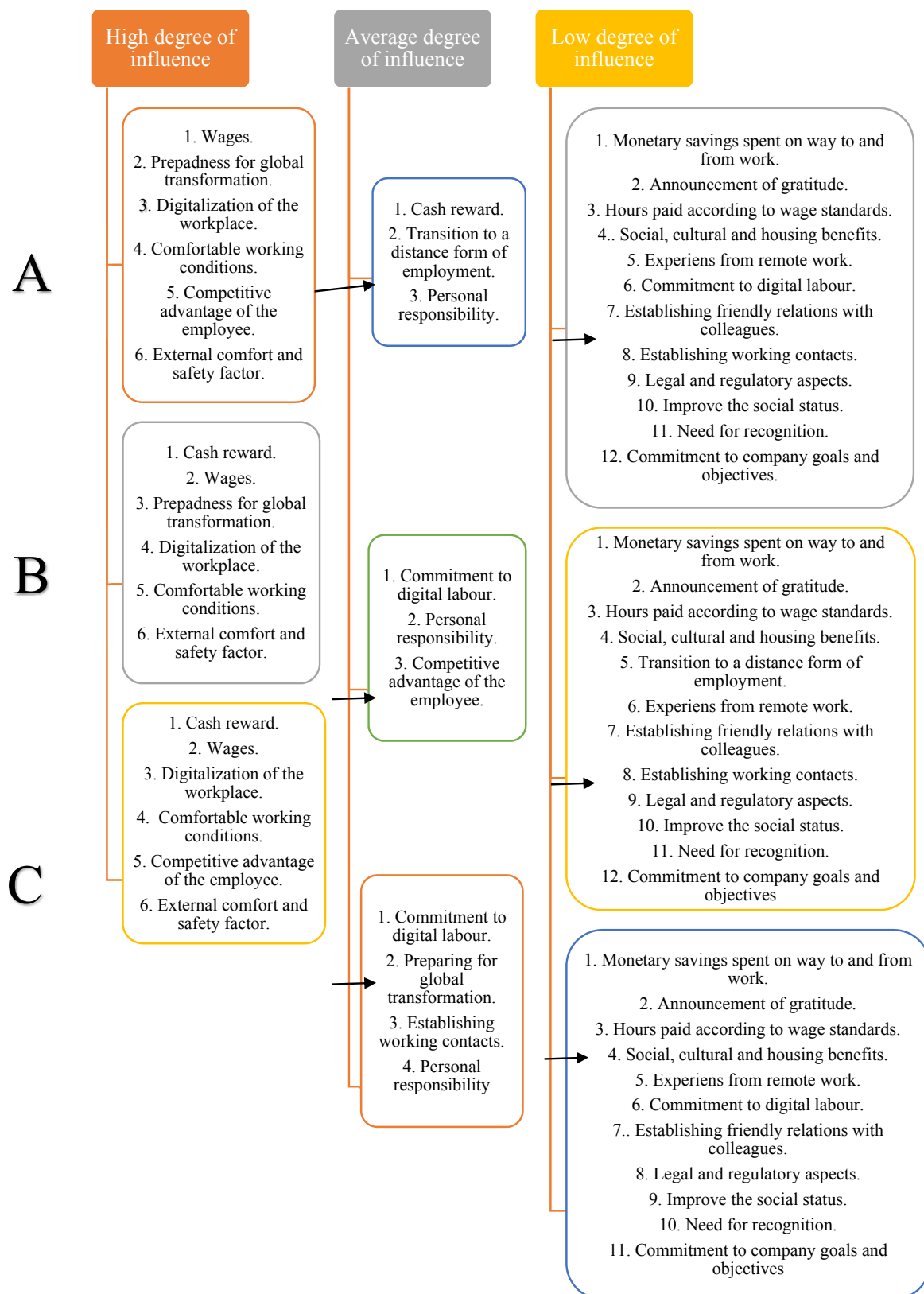


Fig. Factors that have a high, medium or low degree of influence on the motivation of teleworkers of organisations – survey participants

Source: compiled by the author.

of the organization B, and least motivated — employees of the organization A.

The calculation of private motivational indexes for remote personnel revealed a number of differences between organizations in terms of the impact of certain factors on staff motivation. For example, pay and readiness for global transformation have a high impact on staff in organization A, and for organizations B and C — the predominant factors are the cash premium and pay factor.

A distinguishing feature of the educational organization B from other organizations participating in the research, in part because of factors that have a moderate degree of influence on the motivation of the work activity, was the factor of competitive advantages of the employee.

It should be noted that the staff of organization C were the only ones to attribute the establishment of working contacts to a group with little influence on motivation.

The consolidated results of the study, reflecting the high, medium or low influence of the various factors in the organizations, are presented in the *figure*.

Based on the study data obtained by calculating the index of motivation of remote workers by economic group of factors, it may be noted that respondents from all organizations participating in the study clearly indicated a high degree of influence of wage factors and a cash reward with a low degree of influence on the motivation of other factors within a given group.

The data obtained in the course of the research concerning the calculation of the index of the perception of teleworkers of the digital form of labor interaction revealed the following distribution of factors of work motivation, into the questions on levels of influence on the motivation of remote employees. For example, workers in educational institutions less frequently noted the transition to remote work and

commitment to digital labor as factors, having a strong influence on the motivation of remote employees. The readiness for global transformation shared by all participating organizations is noteworthy.

The results of the calculation of the index of motivation of remote workers with socio-psychological factors showed, that most of the staff members of the organizations participating in the study are more motivated by comfortable working conditions. At the same time, respondents noted a reduced level of personal responsibility on the remote worker, with a significant motivation factor — maintaining competitive advantage against the backdrop of the digital transformation of the economy.

In addition, the results of the study showed that all respondents had a low degree of influence on the motivation to work of such socio-psychological factor as establishing friendly relations with colleagues. This factor is the least influential in combination with the establishment of working contacts.

With regard to the external influence index on the motivation of remote workers, all participating organizations highlighted the high degree of influence of the external comfort and safety factor and low influence of other environmental factors analysed, including: regulatory, social status, recognition, commitment to company goals and policies. There are no factors that have a moderate influence on the remote employees.

The results of the calculation of the index of influence of the external environment on the motivation of remote employees are confirmed by the data of the study of the personnel company Unity, which interviewed 647 workers from various Russian organizations. For example, 78% of respondents reported comfortable working conditions expressed in the ability to focus on important work issues and processes at home, and 56% indicated a comfortable workplace as one of the elements

of telecommuting that have a positive impact on labor efficiency.²

In conclusion, the overall employee motivation index requires detailed consideration on the basis of each individual organization. A high level of employee motivation can be said to mean that an organization finds itself in a process of major structural change (which leads to an increase in the motivation of workers to keep their jobs and, as a consequence, a sharp increase in productivity), and the serious level of

personnel development, which is reflected in the high degree of involvement of employees from different parts of the company in related internal work processes, which contributes to raising the overall level of motivation of an individual employee of a designated organization. In addition, research was conducted on the digital form of labor, and it seems likely that a high level of job motivation may exist in organizations that have used remote forms everywhere, including before the coronavirus infection pandemic COVID-19, which involved a number of structures in a remote process suddenly and unscheduled.

² URL: <https://pro.rbc.ru/demo/5e90352d9a7947a0fa9c1df8>.

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ABOUT THE AUTHOR



Ekaterina A. Pondo — Post-graduate student of the Department of Psychology and Human Capital Development, Faculty of Sociology and Political Science, Financial University, Moscow, Russia
ice-world@mail.ru

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