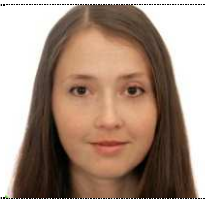
BEHAVIOR DETERMINANTS OF THE INNOVATIVE POTENTIAL OF HUMAN RESOURCES

DETERMINANTES DEL COMPORTAMIENTO DEL POTENCIAL INNOVADOR DE LOS RECURSOS HUMANOS


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RESUMEN
El objetivo de esta investigación es estudiar la formación de capacidades innovadoras de los empleados como un proceso dinámico de su autodesarrollo. Nuestro hallazgo muestra que la preparación innovadora del personal médico de una organización de salud se vio influenciada más significativamente por: independencia en la toma de decisiones, responsabilidad por las consecuencias de las decisiones de uno, conciencia del rol de uno en el logro de los objetivos de la institución médica, y conocimiento de la organización... La formación de preparación innovadora del personal administrativo-administrativo está influenciada por la oportunidad real de hacer propuestas innovadoras y la disposición adyacente de la población.
Palabras clave: Innovación, modelo de preparación para la innovación, el personal de la organización, comportamiento innovador.

ABSTRACT
The aim of this research is to Analyze formation of innovative capabilities of employees as a dynamic process of their self-development. Our finding shows that the innovative readiness of the medical personnel of a healthcare organization was most significantly influenced by: independence in decision making, responsibility for the consequences of one's decisions, awareness of one's role in achieving the goals of the medical institution, awareness of the efficiency and competitiveness of private medicine. The formation of innovative readiness of the administrative-managerial personnel is influenced by the actual opportunity to make innovative proposals, and the adjacent readiness of the population.
Keywords: Innovation, innovation readiness model, the staff of the organization, innovative behaviour.

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INTRODUCTION

Current problems of organizations cannot be solved with past solutions and they do not predict or solve future problems, therefore for pre-formation of future, new measurements should be taken in organizations. Nowadays environmental conditions and rules of play has become very complicated and uncertain in organizations, and they can no longer guarantee their long-term survival with the superficial changes in structure, methods, systems, and so on. Hence, today's organizations should create such an outlook in the minds of their managers and employees that there is a new future in the production of goods and services that should be created; on the other hand, adaptation to change is not enough, but it must be created. Creativity means providing new thinking and design to improve the quantity or quality of the organization's activities. In other words, increasing productivity, products or services, reducing costs, improving methods and providing new services, which usually have direct relationship with creativity and increase the level of employee performance in an organization.

> The positive perception of innovations and readiness for their implementation by the personnel of an organization form the innovative vector of the general development of the organization. Jong and Hartog believe that "… it is the employees of the organization that can help to increase the quality of performance of the organization by the ability to generate new ideas and develop them in order to produce higher quality goods, render professional services and improve the working process" (Jong and Hartog, 2007, p.45).

Indeed, the innovative readiness of the personnel is often determined by their interest in increasing the efficiency of their activity. The fundamentally important aspect here is the employees' expectations of certain positive results of the process of innovations elaboration and introduction. The expected effect and the result of innovative behavior of an employee becomes the main motivator of their action or inaction. It is such interpretation that allowed the scholars Yuan and Woodman to make a conclusion about the productivity of the innovative readiness of the personnel from the viewpoint of disseminating it along the organization as a whole: changing one element in the system may radically change the functioning of the whole system (Yuan and Woodman, 2010).

The above conceptions stem from the idea that the employees dedicated to the organization promote the development of its innovative activity.

The research of the dependence of the personnel's innovative activity on the position occupied by an employee in the hierarchy of the organization and the duration of their working in it was made by Liu and Peng. (2016). They revealed the following dependence: on the one hand, the personnel with low status and short term of working in the given position demonstrate the positive connection with

innovative behavior; on the other hand, the employees with long term of working in the organization demonstrate the negative connection with innovative behavior. In the latter case, the dependence is manifested regardless of the position occupied by the employee and their status hierarchy within the organization. Hence, the scholars make a conclusion that the long period of occupying a certain position reduces the innovative activity of personnel, regardless of the level of hierarchy.

At the same time, it should be noted that the efficiency of innovations' perception undoubtedly depends on individual features of the employees. Kim and Park, basing on polling nurses in healthcare organizations, ranked the factors of their innovative behavior: self-management, creative self-efficiency and individual knowledge (Kim and Park, 2015).

A group of researchers from Taiwan, making a similar research, revealed the most significant factors of innovative readiness of employees in the medical assistance system: creative features of character and authoritarian style of personality in doctors. At the same time, the type of hospital (municipal, private, etc.) does not have a significant influence on the innovative readiness of the personnel (Chen, Yun-Ping, Parboteeah, Lai and Chung, 2014).

Hence one may conclude that the scholars outside Russia, when defining the innovative character of personnel, prioritize implementation of their creative potential, thus attributing personal and individual "coloring" to this term (West, 1987; Janssen, 2005). Among the existing techniques of assessing the personnel innovative potential, the most well-known and popular are the techniques by Howkins and Rogers. (Howkins, 2005, Rogers, 1961).

Based on what has been said, the importance of innovation and creativity in the organization can be clearly seen, but it must be kept in mind that creativity and innovation are not always accepted by the organization with open arms. Especially in hospitals where doing routine tasks exists in a very high level and for each person specific tasks are specified and due to their special circumstances, organizational innovation is not much the focus of attention. The reason is that innovation can have very serious consequences, including the risk of endangering the lives of patients. So today, we are facing obstacles to the creativity of human resources in health centers, and in the current research we have tried to identify those obstacles in form of a model. Accordingly, in the four categories including: creativity value in the organization, the possibility of introducing innovative suggestions, preparing for independent decision making, and preparing for cooperation with others we have gathered the factors influencing the innovation of human resources factors in hospitals.

METHODOLOGY

Based on the anonymous polling technique, we presented the original research on the negative and positive factors of the employees' innovative behavior. Statistical population included the medical personnel of the Central Hospital of the town of Almetyevsk, Republic of Tatarstan.

Researching the innovative potential of the personnel enables not only to obtain information about its current state and reveal the problem points in the development of the employees' innovative competencies, but, more than that, to introduce the program for education and development of the personnel. Our author's position is that the personnel innovative behavior and improvement of qualification should be initiated not as much by the management but, to a larger extent, by the employees. Hence, in our research we accentuate self-identification of a person as an active innovator, and revival of the mechanisms of their internal motivation.

The objective of the original research was the formation of innovative capabilities of employees as a dynamic process of their self-development. In order to achieve this goal and based on the anonymous. To achieve this, we performed the polling, collecting and analyzing of the primary data of the poll participants – doctors, paramedical and administrative-managerial personnel of a medical institution.

The key method of data collection was polling. Polling was performed from March to May 2017 in the Central Hospital of the town of Almetyevsk, Republic of Tatarstan. The data for groups of personnel were analyzed separately. To estimate the factors of willingness to participate in the implementation of innovations, we used the following Model:

$$WPII = \xi + \beta \cdot (x_i)$$

- Independence in decision-making
- Responsibility and consequence of decision-
- Awareness of the role of self in organization
- Awareness of the importance of productivity and competitiveness in job

where:

WPII — willingness to participate in the implementation of innovations;

$\beta \cdot (x_i)$ — matrix of factors of the employees' innovative behavior;

ξ — a component reflecting the impact of factors not included into the model.

The research involved 249 employees. All personnel were divided into four major groups:

1- Administrative-managerial personnel,

2- Doctors,

3- Paramedical personnel

4- Junior nurses.

Junior nurses were not considered within the present research, as they do not take part in introducing innovations in the organization. The research was carried out in the form of polling.

The questionnaire offered open and close questions, and ranking tasks.

The correlation and regression analysis were performed with the SPSS 21 Statistical software. To do that, the answers were coded as qualitative variables in accordance with Harrington scale. The largest share in the structure of personnel belongs to women (68.7%). The category of doctors (41.5%) and paramedic staff (37.1%) prevail.

RESULTS AND DISCUSSION

Table 1: The structure of the respondents

Characteristics of the respondents		N	%
Gender	male	70	31.3
	female	154	68.7
Personnel category	Administrative and management personnel	48	21.4
	Doctors	93	41.5
	Paramedical personnel and junior nurses	83	37.1

by: Rudaleva, Kabashev, Larionova and Varlamova (2018)

As the resulting indicator, we selected the question “Assess your readiness to participate in introducing innovations”. 54.3% of all three groups state that they are ready to participate in innovations. Most active in this respect are administrative and paramedical personnel – 77.1% and 85.5%. Of the similar opinion are those 21.7%, who clarify that they would participate but on certain conditions – these are doctors (18.3%) and paramedical personnel (7.2%). In total, 87.1% of all respondents said they could participate in elaboration and introduction of new examination and treatment techniques, and only 12.9% lack such desire (strive), and these are mainly doctors (15 people, or 6.7%).

At the next stage, we estimated the innovative readiness against the source of motivation (internal or external motive). Administrative-managerial personnel and doctors demonstrate mainly internal driving motives to participating in introducing innovations (68.8 and 76.3%). 37.3% of paramedical personnel are motivated by their bosses. In our opinion, the reason is that the content of their labor activity is

determined by administration. Such passive model of behavior is also taken when implementing innovations in a healthcare organization.

The employees were offered to rank, in the descending order of significance, the problems when implementing innovations in an organization. The main problem marked by administrative-managerial personnel and doctors was connected with the low quality of preliminary preparatory work, of the clearly prescribed algorithms and responsibility centers.

The management does not consider it to be a problem: the influence of the factor “Lack or low quality of documentary support of innovations” was assessed as the lowest. At the same time, both the doctors and the paramedical personnel estimate administrative barriers (bureaucratization, abuse of power by some managers, etc.) as significant.

This contradiction can be explained by the fact that management seek to achieve strategic goals and fulfilling the plans “from the above”, while the immediate executors – medical personnel, face the low level of preliminary preparatory work. As a consequence, high intra-company transaction costs occur when implementing and introducing the innovative technologies of information processing, e-documentation, and using new diagnostic equipment and methods.

Further, the employees were offered to rank the professional priorities. The priority professional interests of doctors and administrative-managerial personnel are the prospect of stable work, level of salary and probability of its growth. Paramedical personnel prioritized the possibility of carrier growth (this is due to the fact that within the “nurses” category there is internal gradation into chief, senior and junior nurses), using the facilities of the healthcare organization. At the same time the latter factor is not significant for all other categories of the personnel. Relations within the collective are significant for all categories of the personnel. Less significant for all employees are personal reputation and the reputation of the company. In our opinion, this is due to the asymmetry of information between a doctor and a patient in the healthcare system, and monopolization of the healthcare services market by state medical institutions.

To assess the factors of the employees’ readiness to participate in introducing innovations, we used equation (1). The obtained results and test parameters of the model of innovative readiness of administrative-managerial personnel are presented below (table. 2).

Table 2: Assessment of the factors of innovative readiness of administrative-managerial personnel

Variables	Coefficient	Standard Error	t-statistics	P-value
const	–0.0542297	0.0806952	–0.6720	0.5050
Possibility to introduce innovative proposalsx_1	0.688266	0.103640	6.641	3.48e-08
Assessment of the readiness of the population to the innovations in a medical organization x_2	0.383694	0.122882	3.122	0.0031

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The model is acceptable, as the determination coefficient is equal to 0.6715. By Fischer criteria, the model is significant. In the built model, P-value is 4.97e-12, which testifies to the quality of the model, as the probability of error is only 1%. The standard error is 0.1097, which is less than the regression coefficient (R-square=0.4904). As a result of regression analysis, we obtained a linear equation as follows:

$$WPI = -0.0542+0.688 \cdot x_1+0.384 \cdot x_2 \quad (2)$$

The innovative readiness of administrative-managerial personnel is most significantly influenced by the actual possibility to introduce innovative proposals, and by the assessment of the population's readiness to innovations in a medical organization. The reason for this is participation of this category of employees in implementing the State Program of the Russian Federation "Development of Healthcare" with regard to subprogram 3 "Development and introduction of innovative techniques of diagnosing, preventing and treatment, as well as the bases of personalized medical care".

The obtained results of the model of innovative readiness of doctors are presented below (table no.3).

Table 3: Assessment of the factors of innovative readiness of doctors

Variables	Coefficient	Standard Error	t-statistics	P-value
const	–0.1775	0.0873	–2.033	0.0452
Educational level x_1	–0.0275	0.0114	–2.418	0.0178
Satisfaction with work x_2	0.3040	0.0957	3.176	0.0021
Readiness for independent decision-making and responsibility for consequences x_3	0.3657	0.0707	5.172	1.52e-06
Readiness to Analyzex_4	0.2499	0.0842	2.970	0.0039
Awareness of one's own role in achieving the goals of the medical institution x_5	0.1681	0.0638	2.634	0.0100
Estimation of the readiness of the population for the introduced innovative technologies in medical organizations x_6	0.1585	0.0761	2.082	0.0403
Awareness of the effectiveness and competitiveness of private medical care x_7	0.1586	0.0596	2.661	0.0093

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The model is acceptable, as the determination coefficient is equal to 0.4616. By Fischer criteria, the model is significant. In the built model, P-value is 1.42e-11, which testifies to the quality of the model, as the probability of error is only 1%. The standard error is 0.1398, which is less than the regression coefficient (R-square=0.4909). As a result of regression analysis, we obtained a linear equation as follows:

$$WPI\ I = -0.1775+0.304\cdot x_2+0.3657\cdot x_3+0.2499\cdot x_4+0.1681\cdot x_5+0.1585\cdot x_6+0.1586\cdot x_7-0.0275\cdot x_1 \quad (3)$$

As can be seen from the equation, the employees' readiness to participate in introducing innovations is most significantly influenced by their personal readiness for independent decision-making and taking responsibility for the consequences, as well as satisfaction with labor and readiness to Analyze.

Less significant factors are awareness of one's own role in achieving the goals of the medical organization, the opinion of doctors about the population's readiness to innovative technologies introduced in a medical organization, recognition of the efficiency and competitiveness of private medicine.

These factors directly influence the resulting index. It is notable that with the increase of educational level, the innovative readiness of doctors decreases, though the intensity of this link is low.

The analysis of factors of innovative readiness of paramedics (Table 4) showed,

that most significant is the readiness to share ideas, knowledge and skills with colleagues.

A specific feature of personnel is their solidarity, unity, which is reflected in their exchange of experience and knowledge, and mutual support when implementing innovations.

The next important factor is the possibility to introduce innovative proposals. Staying on the intermediate position within the hierarchical structure of a healthcare organization, they still are willing to participate in making innovative decisions and actively implement them. These conclusions are indirectly confirmed by the third significant factor – readiness for independent decision-making and taking responsibility for the consequences.

Table 4: Assessment of the factors of innovative readiness of paramedical personnel and junior nurses

Variables	Coefficient	Standard Error	t-statistics	P-value
const	0.0726	0.0566	1.284	0.2029
Possibility to introduce innovative proposalsx_1	0.3249	0.0642	5.063	2.64e-06
Readiness for independent decision-making and responsibility for consequences x_2	0.2217	0.0641	3.459	0.0009
Readiness for cooperation with colleagues x_3	0.3853	0.0723	5.326	9.20e-07

By: Rudaleva, Kabashev, Larionova and Varlamova (2018)

The model is acceptable, as the determination coefficient is equal to 0.7101. By Fischer criteria, the model is significant. In the built model, P-value is 3.50e-21, which testifies to the quality of the model, as the probability of error is only 1%. The standard error is 0.0635, which is less than the regression coefficient (R-square=0.7101). As a result of regression analysis, we obtained a linear equation as follows:

$$WPI = 0.0726+0.3249 \cdot x_1+0.2217 \cdot x_2+0.3853 \cdot x_3 \quad (4)$$

SUMMARY

The majority of administrative-managerial personnel and doctors have internal motivation for participation in introducing innovations.

The most important factor in forming the innovative readiness of administrative-managerial personnel is the possibility to introduce innovative proposals, as well as the assessment of the population's readiness to innovative technologies

introduced in a medical organization.

The most significant factors are those of the III (state and problems of introducing innovations within the organization) and IV groups (the employee's assessment of the trends and problems of introducing innovations in the external environment of the organization).

The innovative readiness of doctors is most significantly influenced by: the level of education, satisfaction with labor, readiness for independent decision-making and taking responsibility for the consequences, readiness to Analyze, awareness of one's own role in achieving the goals of the medical organization, assessment of the population's readiness to innovations in a medical organization, recognition of the efficiency and competitiveness of private medicine. The most significant factors are those of the II group (the employee's place and role in innovative processes within the organization).

The hypothesis of the positive influence of the level of education on the personnel's innovative readiness was not confirmed.

CONCLUSIONS

The innovative readiness of paramedical personnel is determined by the personal characteristics of the employees, awareness of one's own role in introducing innovations, ability to interact with each other; it is weakly connected with the problems of introducing innovations within the organization or in the external environment of the organization. The most significant factors are those of the II group (the employee's place and role in innovative processes within the organization).

Depending on the functional tasks, place and role in the organization' structure, the factors of the personnel innovative behavior act in different directions.

For the administrative-managerial personnel, the key performance indicators are the guidelines when selecting the behavior model in an innovative environment, both within the organization or in the sector as a whole.

For executors (in this case – doctors), innovative behavior is determined by both subjective (readiness for independent decision-making and taking responsibility for the consequences, satisfaction with labor), and objective characteristics (the need to know and use innovative technologies of treatment, the growing efficiency and competitiveness of private medicine, awareness and readiness of the population to innovations in medical sphere).

The innovative readiness of paramedical personnel is determined by subjective factors (ability to interact with each other, possibility to introduce innovative proposals).

The research results can be used in elaborating the programs for personnel training and development, and constructing a self-developing organization on its basis. The innovative behavior of doctors is formed mainly by their own initiative. The courses for advancing qualification and training should be built upon the principles of the freedom of choice of the program, and openness. The paramedical personnel should be involved in discussing and making proposals; feedback should be arranged. The role of administrative-managerial personnel should consist in quality methodological and documentary support of all stages of introducing innovations, reviving the mechanisms of the employees' internal motivation.

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