Formation of Teacher’s Innovative Culture in the Educational Space of a Medical University

Formación de la cultura innovadora del profesor en el espacio educativo de una universidad de medicina

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Contents
1. Introduction
2. Methodology
3. Results
4. Discussion
5. Conclusion
References

ABSTRACT:
Introduction. Improving the quality of public health service largely depends on the level of the existing innovative culture in the educational space where future medical specialists receive a specialized education. Methodology. Innovative pedagogical activity has some specific features as a specific kind of pedagogical activity aimed at the formation of new goals, content and organizational conditions of the educational process in order to optimize it, increase its productivity and effectiveness. The conditions for successful innovative pedagogical activity are as follows: effective management of innovation processes at different levels of the education organization, inclusion of local innovations in the unified logic of the innovation process, creation of organizational prerequisites and a system for assessing the effectiveness of innovation; assistance in enhancing the professional competence of teachers, their interest in innovation; ensuring favorable psychosocial work environment of teaching staff, creating the atmosphere of creative search. Results. The teacher’s innovative culture is oriented towards the formation of the innovative culture of future specialists. Increasing the innovative culture of a
1. Introduction

Modern society is increasingly aware that improving the quality of public health service largely depends on the level of the existing innovative culture in the educational space where future medical specialists are trained.

The Ministry of Health of the Russian Federation in conjunction with the Ministry of Education and Science is continuing to increase the number of high university degree medical specialists, as evidenced by an increase of this indicator by almost 7% over the past three years.

The mechanism of target training made it possible to attract and retain young specialists. For 3 years, target training in specialist's degree programmes has increased by 6.8%, and at the postgraduate level - by 13.4%. At the same time, it is necessary to emphasize the increase of target training effectiveness to almost 90%, which is especially important for medical personnel.

It is necessary to note the high average score of the Unified State Exam on admission to medical universities, which was more than 74, and invariably high competition (in 2017, the average competition in the universities of the Ministry of Health of Russia was 11.4 applicants per seat, whereas in some specialties it was up to 39 people per place/seat).

What is more, according to Russian Public Opinion Research Center, the profession of a medical specialist came out on top in popularity - 35% of parents would like to see their children as physicians, although 10 years ago the situation was reversed.

Currently, the National Medical Chamber develops professional standards for healthcare workers, professional standards for basic medical specialties having already been approved. The creation of all standards for medical professionals should be completed by 2019.

In 2016, a fundamentally new system of permission to be engaged in professional medical activities - accreditation - was launched. In 2016, 98% of graduates in "Stomatology" and 94% in "Pharmacy" successfully passed the accreditation. This year, graduates in all specialties in "Healthcare and Medicine" passed the accreditation. In total, more than 31.5 thousand graduates were admitted to the procedure, 97.9% successfully passed this rather complex but objective, honest and fair examination.

Since 2019, medical residents will be accredited. Gradually, by 2021, it will have spread to all doctors and nurses.

The National Educational Portal of the Ministry of Health of the Russian Federation is being formed, allowing introducing the principles of continuous professional development of healthcare professionals. Today, more than 200 thousand doctors are registered users of this resource, the portal hosting about one thousand interactive educational modules, more than 13.5 thousand educational programmes, including programmes of theoretical and practical training, residency and simulation training.
The educational system needs the teachers capable of implementing innovative changes in the educational process, which requires a fundamentally new technological support for innovation activity and involves mastering the relevant norms of innovative behaviour by teachers. Models, forms, types and ways of disseminating innovative pedagogical practices can be considered as one of the most important resources of the education system modernization in general and in the aspect of the teacher’s innovative culture formation in the educational space of a professional educational organization in particular.

2. Methodology

The beginning of pedagogical innovation was laid in the late 1950's in the West, when pedagogical innovation processes became the subject of research. The works of scientists on innovation up to the present time expand the notion of pedagogical innovation as a science (Miles (2010), Moon (2000), Nichols (1988), Ryan (1943), etc.).

In the Russian pedagogy, the study of innovative processes was caused by an interest in the ideas of innovative teachers (late 1950's, early 1960's). In the 1970's and 1980's, ways to implement the achievements of pedagogical science into practice were created. With the development of pedagogical innovation, research focused on the problems of creating and disseminating pedagogical innovations (Slobodchikov (2003), Sirotyuk & Sergeeva (2011), Tkachev (2006), Yusufbekova (1991) and others). The innovative activity of educational institutions (Lomakina & Sergeeva (2011), Bakhtigulova (2014), Sergeeva & Korzhuev (2015), etc.) found methodological justification. Concepts of innovative activity in education (Sumnitel'nyj (2007), Khutorskoy (2008) LV Shmel'kova (2008) etc.) have been developed.

The main tasks of pedagogical innovation formulated in Stepanov (2012) by V.S. Lazarev & B.P. Martirosyan give an idea of the research trends in this field:
1) descriptive-explanatory tasks, at the level of theoretical explanation revealing the causes, effects and influences of innovations on the educational process;
2) tasks related to the development of new models of innovative activity, the creation of new technologies for its implementation, new forms of its organization;
3) tasks connected with the development of innovation systems: their analysis and evaluation, the choice of directions and ways of improvement as well as changes in them.

Innovative pedagogical activity has the following features as a specific kind of pedagogical activity aimed at the formation of new goals, content and organizational conditions of the educational process to optimize it and increase productivity and effectiveness. Being the main mechanism for modernizing education in the context of socio-economic changes in the country, it is based on the close connection between pedagogical theory and practice, which makes teachers constantly search for new work techniques. It is characterized by the need for organizational support and expert evaluation of the effectiveness of innovations as well as implementation of individual innovation projects within the framework of an integrated innovation programme aimed at different levels of education.

The conditions for successful innovative pedagogical activity are as follows: effective management of innovative processes at different levels of the educational organization; inclusion of local innovations in the integrated logic of the innovation process, creation of organizational prerequisites and a system for assessing the innovation effectiveness; teachers’ professional capacity-building; enhancing their interest in innovative activities; ensuring favorable psychosocial work environment of teaching staff; creating the atmosphere of creative search.

3. Results

The sociological dictionary defines the innovative culture as "a historically established, stable system of norms, rules and methods for the implementation of innovations in various spheres of society, characteristic of a given sociocultural community" (Kolchina & Sergeeva, 2016).

Considering innovation culture as a factor of innovation activity efficiency, it is logical to
assume that low innovation culture is one of the reasons for a number of problems in healthcare today. The teacher’s innovative culture, first of all, is oriented towards the formation of the innovative culture of the future specialist, i.e. a medical specialist. Nowadays, a specialist is to be receptive to innovative methods of medical training being introduced, capable of combining algorithmic activity with creative search and assessing the psychological orientation and the level of certain techniques influence on the patient’s mental processes, ready to show healthy lifestyle through their own example. At the same time, charity, tolerance and other qualities of a humane personality are essential in the model of a specialist.

Thus, increasing the innovative culture of a medical university teaching staff and engaging them in innovative activities is a didactic condition for improving medical specialists training.

The analysis of the concept and structure of the teacher’s innovation culture in Sergeeva (2015a) allowed to achieving the expected results (levels of competency) of the emerging innovation culture in the pedagogical space (see Table 1).

**Table 1**

<table>
<thead>
<tr>
<th>Components of the teacher’s innovative culture</th>
<th>Content dimension of the component</th>
<th>Expected results (levels of competence) of a teacher and a future specialist in the process of the innovative culture formation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axiological</td>
<td>renewal of professionally significant knowledge, ideas, convictions of the teacher (or the future specialist)</td>
<td>Readiness to use the content of self-education in professional space on three main levels: socio-pedagogical (taking into account current requirements of the society), professional group (taking into account the development programme of the medical university) and individual-personal (taking into account the value changes of a teacher or a medical specialist)</td>
</tr>
<tr>
<td>Innovative-technological</td>
<td>renewal of the methods of innovative and pedagogical activity</td>
<td>Readiness to decide: -analytical-reflexive - tasks related to understanding the pedagogical process, its elements in their innovation activity; -structural-prognostic - tasks of the innovative pedagogical process and forecasting its results; -organizational-activity tasks of direct implementation of innovation and creation of optimal conditions for its implementation; - evaluative-informational tasks of collecting, processing and storing the information necessary for the implementation of pedagogical innovations as well as the objective assessment of the process and results of innovation activities</td>
</tr>
<tr>
<td>Cooperative activity-related</td>
<td>formation of a teacher’s (or future specialists’) culture of cooperation in joint innovation activities</td>
<td>Readiness: - to realistically assess their capabilities and distribute their forces when working in a group; - to take responsibility for the results of the group innovation activity; - to develop pedagogical conflictological culture.</td>
</tr>
<tr>
<td>Communicative</td>
<td>formation of a teacher’s (or future specialists’) culture of participation in information</td>
<td>Readiness: - to master new information technologies; - to objectively evaluate the incoming information;</td>
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</table>
The set of questions proposed further can help the teacher of social and humanitarian disciplines to choose an individual development pathway of innovation culture in the pedagogical space:

What literature (not necessarily professional) influenced the rethinking of my pedagogical positions? The answer to this question is important because this source may have contained the keynote for further creativity (for example, the search for the meaning and purpose of life, professional interest, etc.);

What components form the teacher’s innovative culture as a whole? What are their functions?

Does the content of my professional culture correspond to the content of the model of innovative culture developed by the researchers?

Which direction will I choose to innovate my professional pedagogical culture?

What is the essence of the innovative changes that I introduce into my pedagogical space?

When studying the process of forming an innovative culture in the space of a social and humanitarian disciplines teacher, we observed a series of mistakes that prevented innovations from gaining a foothold and improving.

Here are a few pedagogical sketches that it is necessary to draw attention to. The teacher’s failure to understand the reflexive nature of the humanitarian essence led to the devaluation of the high goals claimed in innovation. In fact, there was a profanation of a high idea - there was a beautiful innovative project without profound changes.

The teacher, without giving up the monopoly on knowledge of unconditional truths (historical or artistic), admitted the perfunctory implementation of the innovation that he/she introduced. Only the teacher’s orientation towards the relative nature of any knowledge stimulates the dialogue with the student, which is the basis for many innovative methods.

4. Discussion

The experience shows that modeling innovative educational space is based on the major physiological and pedagogical patterns of upbringing. Students in the educational space of the teacher of social-humanitarian disciplines were involved in the actions encouraging the development of moral values. They were motivated to success as a result, moreover, the conditions for this result acknowledgment in the group were created. To support the formation of moral values the conditions for the manifestation of feelings and experiences in the group (the analysis of historical events in History; training sensitivity in Psychology) were created.
The staff experience of International Regional Centre for Stress Prevention under the Guidance of K. V. Sudakov in the formation of psychological competence of future specialists proved to be of great interest for us (Lomakina, Korzhuev & Sergeeva 2011). Such methods as rationalization, detailed visualization and retrospection were tested in innovative technologies.

When introducing innovations in the educational space, we used the experience of academic experts taking part in the development of The World Health Organization (WHO) recommendations (Khutorskoj 2005), namely, J. A. M. Gray (the Director of Research and Development for Anglia and Oxford Regional Health Authority, Oxford, UK), A. Giacosa (Gastroenterology and Nutrition Unit Director, National Cancer Research Institute, Genoa, Italy), M. Kornizer (Professor of the Laboratory of Epidemiology and Social Medicine, School of Public Health, Free University of Brussels, Belgium) and many others. The experience of foreign experts helped to work out the approaches to form students’ competence in the field of prevention widespread chronic non-communicable diseases, such as cardiovascular and oncological ones as well as certain mental disorders among the population. Project activities developed by these scientists for the prevention and cessation of smoking and drug addiction were used in "Culturology", the strategies for prevention of suicides were involved in "Psychology".

Modeling the innovation process has been based on the following principles (Chernova 1997):
- preservation and strengthening of the best traditions of Russian pedagogy when forming the spiritual and moral values of a medical worker;
- safe implementation of innovations into the pedagogical space;
- development of a high level of innovative, methodical culture of the teacher-innovator.

Further, Table 2 reveals the author's approach to the modelling of an innovation culture in the pedagogical space.

<table>
<thead>
<tr>
<th>The technology of modelling innovative culture in the educational space of the teacher of socio-humanitarian disciplines</th>
<th>Module Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Module &quot;Health&quot;</td>
<td>B. Module &quot;Culture&quot;</td>
</tr>
<tr>
<td>1. Methodological rationale of the module</td>
<td></td>
</tr>
<tr>
<td>1. Basis for creating the module</td>
<td></td>
</tr>
<tr>
<td>Healthcare Development Concept until 2020 (See the website of the Ministry of Healthcare of the Russian Federation)</td>
<td>The concept of the multicultural education in the Russian Federation (see the website of the Ministry of Science and Education of the Russian Federation).</td>
</tr>
</tbody>
</table>
1.2. Module Focus

| Developing and sustaining students' own health culture | Formation of a full-fledged and harmoniously developed personality of a student capable of creative self-development and exercising ethno-cultural awareness and civil identity on the basis of national traditions, values of Russian and world culture. | Modeling in the methodology of teaching socio-humanitarian disciplines on the basis of the best traditions of pedagogy. |

1.3. Module Principle

| A healthy and strong personality is the foundation of the country’s prosperity. | Education in the spirit of tolerance, communicability, trust and peacefulness is characteristic of a multi-national culture and a cornerstone of the Russian civilization. | Professionalism of the teacher is the guarantor of safe implementation of innovations in the educational space. |

2. Modeling of the module

<table>
<thead>
<tr>
<th>Module Elements</th>
<th>A. Health</th>
<th>B. Culture</th>
<th>C. Traditions and Innovations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1. Module’s expected result</td>
<td>Student’s competences</td>
<td>Student’s competences</td>
<td>Teacher’s competences (related to new approaches to the methodology of assessing the professional level)</td>
</tr>
<tr>
<td>Health protection competencies: readiness to participate in</td>
<td>Citizenship competences:</td>
<td>Methodological competence:</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- readiness to master and</td>
<td></td>
</tr>
<tr>
<td>Observe the norms of a healthy lifestyle; - readiness to create projects on health protection (prevention of gambling addiction, drug addiction, smoking, etc.).</td>
<td>Practise innovative information and communication technologies in teaching; - readiness to use the best traditions of pedagogy in modern pedagogical practice.</td>
<td>Socio-psychological competence of the teacher: - Active public activities of the teacher.</td>
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<tr>
<td>Public projects; - readiness to make group decisions; - readiness to prevent intolerance.</td>
<td>2.2. Tasks for the modules technology design and implementation</td>
<td>1. To indicate the themes of the steering document of the disciplines &quot;Psychology&quot;, &quot;Culturology&quot;, connected with the module. 2. Work out the content of academic and methodological complex elements for the module.</td>
<td></td>
</tr>
<tr>
<td>Effectiveness of students’ projects. 2. Dynamics of students’ attitudes towards their own health. The most significant results.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Effectiveness of students’ projects. 2. Dynamics of students’ cognitive attitudes towards the discipline.</td>
<td>1. Effectiveness of the teacher’s projects. 2. Dynamics of the teacher’s competences development.</td>
<td></td>
<td></td>
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<tr>
<td>3. Module quality indicators</td>
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</tbody>
</table>
4. Module effectiveness

The innovative experience used the potential of 3 disciplines taught in a medical university - History, Psychology, and Culturology.

Table 3 presents a synthesis of traditions and innovations, tested by the authors at I.M. Sechenov First Moscow State Medical University.

<table>
<thead>
<tr>
<th>Preservation and strengthening of the best positions of Russian pedagogy</th>
<th>Discipline</th>
<th>Innovations implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The use of the original method of identifying and developing leaders in the group on the basis of A. S. Zaluzhny’s ideas (repressed in the 1930s).</td>
<td>Psychology</td>
<td>Adapted version of T.V. Bendas (Doctor of Psychological Sciences).</td>
</tr>
<tr>
<td>Bibliographical method. Reference to biographies of well-known personalities.</td>
<td>History, Psychology</td>
<td>The genogram method in the study of Ivan the Terrible personality.</td>
</tr>
<tr>
<td>S.N. Shatsky’s idea (the 30s of the 20th century) about the method of projects (in 1935 the method was condemned and rejected in the resolution of the Central Committee of the the All-Union Communist Party of the Bolsheviks (B) of August 25.</td>
<td>Culturology, History, Psychology</td>
<td>Projects presentations using multimedia tools.</td>
</tr>
<tr>
<td>K.D. Ushinsky’s local lore approach to teaching and education</td>
<td>Culturology, History</td>
<td>Electronic version of the museum. Lecture in the regional local history museum.</td>
</tr>
<tr>
<td>Anthropological approach to pedagogy (the idea of Vladimir Mikhailovich Bekhterev (1857 - 1927) and his associates).</td>
<td>Psychology</td>
<td>Adaptation of methods of negative stresses prevention (proposed by researchers of International Regional Centre for Stress Prevention under the Guidance of K. V. Sudakov) for the students to teach their patients: the method of visualization, selective retrospection, rationalization, etc.</td>
</tr>
</tbody>
</table>

The safe implementation of innovations is aimed at preserving and strengthening the students' psychological health as well as the formation of their value-based attitude to health and, in the future, the transfer of this experience to their patients.

The safe implementation of innovations in our experience is an integrated approach that includes the following conceptual foundations:
Valveological approach to teaching classes (in the ratio of reproductive and productive methods of training - priority to the latter);

- studying the issues of the prevention of AIDS, tuberculosis, alcoholism, drug addiction and smoking in "Culturology" and "Psychology";

- studying personality characteristics in "Psychology";

- analyzing the usage of modern forms and methods of teaching in the educational process.

The modelling of innovation culture results in the implementation of professional activities by graduates on the basis of common humane human values (tolerance as the basis for stability of life, empathy, co-operation, understanding and desire to understand, etc.). In this case, it is a postponed and in many ways too subjective result to determine its effectiveness.

The following indicators have been chosen as objective characteristics (Sergeeva 2015b):

- level of cognitive attitudes toward learning;

- level of competence of students in the field of safeguarding and improving their psychological health;

- level of students' innovative culture;

- level of the teacher's innovative culture;

This particular approach to modeling innovative culture allows getting away from the perfunctory implementation of innovations in the pedagogical space.

5. Conclusion

The formed teacher’s innovative space brings the future specialist to the understanding that the quality of life depends on laborious work on one's own spirituality, morality and worldview. The future specialist gets experience of professional activity on the basis of universal humane values, which is the main result of the modeled innovative culture in pedagogical space.

Analyzing the best world practices of medical education, specialists of I.M. Sechenov First Moscow State Medical University came to the conclusion that university clinics provide high-quality training of a medical specialist and clinical and educational interaction. Initially, the university developed a standard package of regulatory documentation to establish university clinics in Moscow. Many of the basic principles of this package are successfully implemented in the University’s Clinical Centre, which has 4,000 beds. For the time being, this is the only university multidisciplinary clinical complex in Russia of such capacity, which solves both practical tasks of medical care together with educational and research tasks. In fact, the established university clinics should be a platform for education, the implementation of new methods and technologies in medicine and the formation of an innovative teacher’s culture in the educational space.

According to the Chairman of the Council of Rectors of Medical Universities, Academician Petr Vitalyevich Glybochko, personalized life-long health management is a key task of fundamental and applied research in I.M. Sechenov First Moscow State Medical University. This principle today practically forms a new model of public health care in Russia. Modern transformation of education should be directed primarily at improving the quality of graduate training. The implementation of such principles should create an effective sustainable system of educational continuum. At the same time, as P. Glybochko points out, the goal of medical education is not only the quality of the medical specialist training, but, most importantly, the quality of life of people.

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