THE SCIENTIFIC AND EDUCATIONAL POTENTIAL OF THE INTELLECTUAL PROVISION OF ENTREPRENEURIAL INNOVATIVE DEVELOPMENT

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Abstract
This article presents the concept of the intellectual provision of innovative activity within entrepreneurship. The intellectual provision includes the organization and self-organization of the continuous information and knowledge in the "education-science-entrepreneurship" system. Intellectual entrepreneurship is considered the result of the integration of science and entrepreneurship and the transfer channel of knowledge between them. The aim of the experimental study is to validate the developed theoretical positions in the field of intellectual provision of the entrepreneurial activity development. The main objectives are the creation of the complex of entrepreneurship development in the framework of training courses, identify a set of characteristics of the intellectual entrepreneur and their assessment, to develop the optimal model of the course that prepares entrepreneurs for today’s challenges.

Key words: Innovation in the entrepreneurship, complex of intellectual providing of innovative development of entrepreneurship, didactic means.

JEL Code: A 13, A 22

Introduction
Today, the word "innovation" means the result of creative activities aimed at the development, production and distribution of new products, technologies, implementation of new organizational forms. Entrepreneurship, as an engine of the modern economy, by definition, must be innovative. To ensure that it is necessary to create an appropriate intellectual environment. Meanwhile, the level of such assurance, at the moment, is rather weak, both at the state level and at the level of understanding of the public.

According to the All-Russian Public Opinion Research Center (VTsIOM) data, the Russians most commonly understand innovation as any innovations (in 27% of cases), as well as the implementation of modern technologies (15%). Less than those who believe that this is...
the use of achievements of science and technology (3%), investments in promising sectors of
the economy, social changes and specific innovations (1%). For every second person (53%) it
is currently difficult to estimate. The higher the level of education of the respondents is the
less difficulties they have with the definition of "innovation" (the share of those for whom it
was difficult to answer is decreased from 89% in the group with the education less than
secondary to 30% in the group with higher and incomplete higher education) (All-Russian
Public Opinion Research Center).

1. Innovation in entrepreneurship: concept and prerequisites

In the Russian legislation the term "Innovation" is defined in the Federal Law № 127 "About
science and state scientific-technical policy (Federal Law of the Russian Federation “About
science and state scientific-technical policy”, 1996). According to this law, "Innovation" is a
new or significantly improved product (goods, services) or process introduced to the use, a
new sales method or a new organizational method in business practices, workplace
organization or in external relations. Unfortunately, the Russian legislation gives a too broad
definition that allows scientists or entrepreneurs to issue upgraded products or services as
something radically new, thereby deceiving the final consumer.

Nevertheless, the "enhanced" conception of innovations was universally acknowledged not long ago when the changes in the nature of innovation processes became obvious that led to the emergence of new challenges - both in theory and in practice - for innovative thinking managers of companies and developers of state policy. The retrospective analysis shows that many companies have been involved in joint research and development (R & D) with external partners for decades but R & D outsourcing became common practice a hundred years ago.

Modern innovative processes are becoming more distributed, continuous in time and
acquiring multi-disciplinary and inter-institutional character. It is this combination of changes,
partly mutually reinforcing, that contributes to the formation of "open innovations" as a new
phenomenon, and this term has been discussed in the literature for more than 10 years
(Dahlander, Gann, 2010). New knowledge and associated competencies for its usage are
grouped into new inter-disciplinary clusters on a large scale. However, the space for
innovative solutions to meet the needs of society which is becoming increasingly diversified
is expanding faster (Robinson , Blenker , 2014, Ferrary, 2011). For the last decades the basic
principles of the innovation management process have not been practically changed
(Huizingh, 2011). At the same time, the nature and role of different sources of innovations is significantly changing, as well as some ways of their usage (Bianchi, Cavaliere, Chiaroni, Frattini, Chiesa, 2011). The growing volume of the knowledge markets and information contributes to adoption of the concept of open innovation by companies, because in the process of the exchange and trade of knowledge within innovation networks they acquire new competencies. All this leads to the intellectualization of many areas of activity.

1.1 Intellectualization of innovative entrepreneurial activity

The intellectualization process is the process of usage and formation of intellectually significant possibilities and abilities. It is caused by the appearance of a large number of tasks in the working activity that requires the non-standard innovative approaches and solutions in various aspects of professional activity. This highlights the intellectual expenses (for the production of knowledge, information), which results in a modification of the functional structure of the labor (Egorov, 2004).

As we know, the economy of knowledge fundamentally changes all the traditional principles, approaches and models of development of competitive entrepreneurship.

The analysis of the modern literature on entrepreneurship shows that many scientists are beginning to pay more attention to the phenomenon of intellectual entrepreneurship typical for the economy of knowledge. The concept of the intellectual entrepreneurship is quite new and poorly studied. In the most basic approximation, the intellectual entrepreneurship is an entrepreneurship carried out by intellectuals, that is, by people with higher education, the results of their activity is the intellectual product.

The intellectualization of the entrepreneurship creates conditions for increasing of the role of education as a basis for the formation and development of intellectual resources, the creation and transfer of new knowledge into the economy (Baklashova, 2014.). The education system inevitably becomes closer to the entrepreneurship, integrates with it, which contributes to more effective sharing of knowledge, the implementation of more advanced scientific methods of production, the education and spiritual growth of entrepreneurship, forcing it to serve the interests of society, not just personal gain.

For effective implementation of this task the relationship between the education and entrepreneurship systems which are separated and develop independently that holds the processes of intellectualization and entrepreneurship back must change.
The strategy of innovative development of the Russian Federation for the period up to 2020 "Innovative Russia 2020" identifies a number of basic tasks that are associated with the development of the education sector: - to change people, to increase their susceptibility to innovations, to expand the class of innovative entrepreneurs, to create an atmosphere of tolerance to risk in the society; - to increase the innovative activity of the business and the dynamics of the emergence of new innovative companies.

1.2. Pedagogical approaches and results of the development of the personal qualities in the process of intellectualization of the entrepreneurial activity

We should refer to educational technologies, contributing to the development of entrepreneurial knowledge and personal qualities which allow to be successful in the process of intellectualization of the entrepreneurship (Hsu, Tan, Laosirihongthong, 2014).

The developed technology of training and development of professionally important qualities has been fulfilled and perfected for over a decade in the Nizhny Novgorod State Kozma Minin Pedagogical University. The result of its usage is a proved development of professionally important qualities of an entrepreneur.

The technology of formation of professionally important qualities is set up on the basis of the known principles developed by B.I.Teplov, V.D.Shadrikov. The main idea is that the professionally important qualities are understood as a product of lifelong formation. The determining role in this process belongs to the training which the development follows. The idea of the development of qualities is carried out in the process of preparation of participants within a refresher course "Technologies of modern entrepreneurship" (which consists of modular programs selected by participants).

The study was conducted on the basis of the Nizhny Novgorod State Kozma Minin Pedagogical University for 10 years (2004-2014). 498 people taking a refresher course on the program "Technologies of modern entrepreneurship" participated in the experiment. The aim of the experimental study was the validation of the developed theoretical positions as well as working out the optimal model of the course which allows to prepare an entrepreneur ready for the challenges of the time.

The objective of the course was the preparation of the entrepreneur-practitioner. Consequently, during the experimental study it was necessary to evaluate:

1. The level of mastering of the fundamental knowledge of the basics of entrepreneurial activity, management and marketing.
2. The level of formation of professional motivation for entrepreneurial activity.
3. The degree of readiness for practical entrepreneurial activity.
4. The development of entrepreneurial skills.

Let’s see each point in more detail.

1. The level of mastering of the fundamental knowledge for each discipline was evaluated:
   a) in the course of mastering (during lectures);
   b) after doing practical exercises (current assessment via level tasks);
   c) during the end of course test (at the reportable events).

Table 1 shows the fulfillment results of the level tasks by the course participants at the lectures in the first stage of the experimental study.

Tab. 1: The fulfillment results of the level tasks in the process of mastering of the fundamental knowledge of the module “Basics of entrepreneurial activity”

<table>
<thead>
<tr>
<th>Ser. No.</th>
<th>Module topic</th>
<th>Task level</th>
<th>The number of students who coped with the task (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>I</td>
</tr>
<tr>
<td>1.</td>
<td>Entrepreneurship: the nature, aims, objectives</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>2.</td>
<td>Principles and forms of entrepreneurship</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Technology of establishing an enterprise</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Internal and external environment of the firm functioning.</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Management in the activity of an entrepreneur and a teacher</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>6.</td>
<td>Personnel. Productivity and salary.</td>
<td></td>
<td>54</td>
</tr>
<tr>
<td>7.</td>
<td>Marketing in the activity of an entrepreneur.</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>8.</td>
<td>Product development process</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>9.</td>
<td>Small business development</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>10.</td>
<td>Financial activities of an entrepreneur. The concept of accounting.</td>
<td></td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>Investing in entrepreneurial activity</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>11.</td>
<td>Entrepreneurial activity and taxation of entrepreneurial firms. State</td>
<td></td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>regulation of entrepreneurial activity</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>12.</td>
<td>Analysis of the results of activity of enterprises in market economy</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>13.</td>
<td>Basics of Entrepreneurial Law</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>14.</td>
<td>Entrepreneurial ethics and morality</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>15.</td>
<td>Entrepreneurial activity at educational institutions</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>The average number of students who coped with the tasks of each level</td>
<td></td>
<td>56,5</td>
<td>73,4</td>
</tr>
</tbody>
</table>

Source: study of the authors of this article

As we can see from Table 1, at the first stage lectures the course participants were offered tasks of all levels. The surprising fact was (it can be clearly seen in Table 2) that the course participants coped with the second and third level tasks better than with the tasks of the first level.
2. The level of formation of professional motivation for entrepreneurial activity.

At the first stage of the experimental study the task of formation of professional motivation (Duval-Couetil, Gotch, Yi, 2014) to the practical entrepreneurial activity was not set since the courses were attended by people with the need to acquire professional knowledge enhancing their competence in the business.

Meanwhile, to determine the effect of the course on participants the survey was conducted. The results of the survey showed an increase in the level of motivation to the entrepreneurial activity (from 54% - up to 61% - in different groups of the course participants).

3. The degree of readiness for practical entrepreneurial activity.

The fact that the course developed by us really allows to prepare a participant to the practical entrepreneurial activity is confirmed by talks conducted with entrepreneurs - representatives of real business.

During the talks conducted with every entrepreneur the following questions were offered:

1. Is the successful implementation of the practical entrepreneurial activity possible without additional specialized training?

2. They say that one must be born as an entrepreneur. Then, is it necessary to use special forms of work (role plays, trainings etc.) aimed at developing entrepreneurial skills in the preparation of the entrepreneur-practitioner?

3. Knowledge of what main issues studied in the course turned out to be the most useful for organization of practical entrepreneurial activity?

The results of the talks with entrepreneurs-practitioners enabled to conclude that the methods and forms of education used in the course can not only develop entrepreneurial skills, but also motivate future specialists to the professional activity and develop reflective abilities.

4. The development of entrepreneurial skills.

To identify the initial level of the studied qualities - creative potential, sociability, initiative, working ability, ability to take risks valid test methods were used. For all applied tests the nine level rating scale was used to interpret the development indicators of skills: level 1 - very low level of development of appropriate skill; level 2 - low; level 3 - below medium; level 4 -
slightly below medium; level 5 - medium; level 6 - slightly above medium; level 7 - above medium; level 8 - high; level 9 - very high level of development.

It is known that an entrepreneur should possess all the skills we have dedicated at the level of their development not less than below medium. This assertion is proved by the results of our testing of entrepreneurs-practitioners. They are given in Table 2.

Tab. 2: Development of entrepreneurial skills among entrepreneurs-practitioners

<table>
<thead>
<tr>
<th>Ser. No.</th>
<th>Entrepreneurial skills</th>
<th>Indicator of development (in % of the total number tested)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 2 3 4 5 6 7 8 9</td>
</tr>
<tr>
<td>1</td>
<td>Creative potential</td>
<td>- - - - - - 2,7 19 27 51,3</td>
</tr>
<tr>
<td>2</td>
<td>Sociability</td>
<td>- - - - - - - - 21,6 78,4</td>
</tr>
<tr>
<td>3</td>
<td>Initiative</td>
<td>- - - - - - 5,3 13,5 43,2 21,6 78,4</td>
</tr>
<tr>
<td>4</td>
<td>Working ability</td>
<td>- - - - - - 3 10 24</td>
</tr>
<tr>
<td>5</td>
<td>Ability to take risks</td>
<td>- - - - - - 6 16 10 5</td>
</tr>
</tbody>
</table>

Source: study of the authors of this article

As we can see from Table 2, the vast majority of entrepreneurs-practitioners have entrepreneurial skills listed above at the levels above medium. Such skills as sociability and working ability are especially developed.

With the help of these tests at the beginning of the first stage of the experiment before the course started the initial level of the studied entrepreneurial skills was identified. The test results are given in Table 3.

Tab. 3: The monitoring results of entrepreneurial skills of the course participants doing the course “Technologies of modern entrepreneurship”

<table>
<thead>
<tr>
<th>Ser. No.</th>
<th>Entrepreneurial skills</th>
<th>Indicator of development (in % of the total number tested)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 2 3 4 5 6 7 8 9</td>
</tr>
<tr>
<td>1</td>
<td>Creative potential</td>
<td>- - - - - - 38,9 44,4 16,7 - - -</td>
</tr>
<tr>
<td>2</td>
<td>Sociability</td>
<td>- 7 18 22,2 30,6 16,6 5,6 - - -</td>
</tr>
<tr>
<td>3</td>
<td>Initiative</td>
<td>8,3 19,4 27,8 31,9 5,6 4,2 2,8 - - -</td>
</tr>
<tr>
<td>4</td>
<td>Working ability</td>
<td>- 15,3 26,4 34,6 7 8,3 5,6 2,8 - -</td>
</tr>
<tr>
<td>5</td>
<td>Ability to take risks</td>
<td>16,6 37,5 37,5 1,4 7 - - - -</td>
</tr>
</tbody>
</table>

Source: study of the authors of this article
Table 3 shows that before doing the course the skills of the most of the course participants were developed at below medium level. It can be seen that sociability and creative potential show the highest indicators. During further investigation, we paid special attention to the least developed skills: initiative, working ability, ability to take risks.

At the end of the course we conducted the same tests as in the beginning of the experiment. The test results showed the increase of the development level of four out of five studied skills. Table 4 shows the monitoring results of the development of the entrepreneurial skills.

Tab. 4: The development of entrepreneurial skills of the course participants before and after doing the course "Technologies of modern entrepreneurship"

<table>
<thead>
<tr>
<th>The personal qualities to be developed</th>
<th>Creative potential</th>
<th>Sociability</th>
<th>Initiative</th>
<th>Ability to take risks</th>
<th>Working ability</th>
<th>Motivation of achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students (%), showed levels of development of qualities above medium</td>
<td>initial</td>
<td>resulting</td>
<td>initial</td>
<td>resulting</td>
<td>initial</td>
<td>resulting</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>47</td>
<td>45</td>
<td>86</td>
<td>35</td>
<td>53</td>
</tr>
<tr>
<td>Difference in %</td>
<td>22</td>
<td>41</td>
<td>18</td>
<td>6</td>
<td>23</td>
<td>27</td>
</tr>
</tbody>
</table>

Source: study of the authors of this article

After statistical processing of the data presented in table 4, it can be asserted that the course really helps to prepare an entrepreneur-practitioner.

We will show how you can develop some professionally important skills of an entrepreneur. To do this, we present a table (tab.5), which shows the connection of the didactic means with the development of individual skills of an entrepreneur. Table 5 shows that in the column "The personal qualities to be developed" there are six professionally significant skills of an entrepreneur. All the twelve selected and presented in the Table didactic means are active methods and forms of training. This is quite natural, since only such means help the integration of the course participants into an independent search activity, which is a necessary condition for the development of personality. In Table 5, all the didactic means are combined into two groups. The first group - the general didactic means. The second
group reflects the specificity of means of the formation of the entrepreneurial knowledge. The usage of these didactic means for ten years allowed us to evaluate the impact of each of them. The following table presents this evaluation according to the effectiveness of influence of the didactic mean on the development of a particular professionally important skill of an entrepreneur:

«+» – high;
«+–» – medium;
«–» – low.

Tab. 5: The connection of the didactic means with the development of individual skills of the future entrepreneur

<table>
<thead>
<tr>
<th>Group of means</th>
<th>Didactic mean</th>
<th>The personal qualities to be developed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Creative approach</td>
</tr>
<tr>
<td>First</td>
<td>Challenging lecture</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Solution of challenging situations</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Work in small groups.</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Role play</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Excursion</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Discussions and debates on the lesson</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>The method of reviews</td>
<td>+</td>
</tr>
<tr>
<td>Second</td>
<td>Making a business plan. The company presentation</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Analysis and solution of specific business situations. Working out ideas to overcome the crisis</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Creative problem solving methods (methods of questionnaire, &quot;notebook&quot; etc.)</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Talks with the leaders of the real business</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Training</td>
<td>+</td>
</tr>
</tbody>
</table>

Source: study of the authors of this article

Looking back at Table 5, we see that the construction of the educational process on the basis of such methods and forms of teaching as work in small groups, discussions and debates on lessons, role plays ensures the development of virtually all complex of the dedicated skills. At the same time, such didactic means as excursions or method of reviews allow to purposefully develop two, maximum three skills. A similar picture is observed with the second group of means.
Next we turn to the training technologies, since they are the most efficient (Zalyaeva, Solodkova, 2014). Using the training technologies in the educational process is quite effective at the initial and the final stages of training, when the professional competence of the participant-entrepreneur is intensively formed.

So in the module "Advertising technologies" each trainee is given an individual economic task that is close to a real situation (developing of a promotional product). We will give an example of a practical lesson on the topic "Development of a slogan". The lesson is designed for 1 hour 30 minutes. The course of the lesson can be represented as follows:

1. **Mini-lecture "Development of a slogan" (20 minutes).**

   1. **Exercise: "Options for the development of a slogan" (60 minutes)**

      The course participants are distributed into micro groups. Each group is asked to select the object to develop a slogan (by lot), then the course participants work out the proposed algorithm. At the beginning each trainee works out his own versions of the advertising slogans, then the sharing of the slogans and the choosing of the "super slogan" takes place in the micro groups. Further, the results are given in the form of presentations.

   2. **Feedback (10 minutes)**

      Questions:

      Which of the slogans may be effective for the "life" of the product?

      Which of the presentations of the slogan is memorable?

      The practice shows that the training technologies are quite effective during training of the specialists in various fields of business, because they allow not only to form the professionally important competencies, but also to develop the ability to assess the degree of possession of these competencies and to reflect one’s own activity (Lebedeva, 2012).

      So, the motivation of achievement after doing the course “Entrepreneurship” increases on average by 30%, creative approach – by 20%, initiative – by 20%, working ability – by 25%, sociability - by 40%.

      All this contributes to increase of the share of intellectual products and services in the total amount in the production of goods. According to S.M. Klimov, the intellectual products and services occupy an increasingly important place in the international markets.
Conclusion

While conducting this study it became evident to the authors that the development of innovative entrepreneurship is impossible without the usage of the modern approaches to the training of entrepreneurs. Meanwhile, the training of entrepreneur-practitioner should be systematic, both from the point of practical knowledge and from a position of readiness and development of the professionally significant skills of a personality. On this basis, we can formulate a number of the practical recommendations for optimizing the usage of scientific and educational potential for the development of the entrepreneurship.

Firstly, the innovative development of the entrepreneurship is impossible without intellectual providing. Based on this requirement, it can be asserted that all the processes of the development of the entrepreneurship should be designed on the basis of "education-entrepreneurship".

Secondly, in the era of economy of knowledge, all the internal and external environment of the entrepreneurship should be formed through the management of knowledge.

Thirdly, it is evident that the entrepreneurs-practitioners are unlikely to "sit at the desk," and now the process of their preparation is realized primarily through the refresher courses. Therefore, special attention should be paid to a complex of didactic means contributing to the polyinformative preparation of an entrepreneur.

Thus, the intellectual providing of the innovative development of entrepreneurship includes the organization and self-organization of continuous counter information-knowledge torrents in the system of "education - science - entrepreneurship" that contributes to the development of competences and "knowledge" competitiveness of all participants of the process of the innovative development at all levels of the interaction.

As the main participants of the innovative providing of the intellectual development of entrepreneurship it is possible to highlight the following subjects of the education and science system (universities, scientific institutions), the system of entrepreneurship (large, medium and small businesses), the state and its institutions. The intellectual entrepreneurship is considered as a result of the integration of the science and entrepreneurship and the knowledge transfer channel between them. Each of them has an active influence on the state and development of all elements of the innovative providing of the intellectual development of entrepreneurship, and the effectiveness of their interaction determines the efficiency of the reproduction of intellectual resources, as well as the exchange and dissemination of the
knowledge in society (the country), which ensures the development of the "knowledge" competitive ability of the economic subjects at all levels of socio-economic system. For the development of the intellectual resources in the country it is necessary, first of all, to work out the strategy of development of the education system appropriate to the state policy. The education system should be a key integrator of the intellectual and innovative providing of the economic subjects.

References


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