

Innovation Activity Peculiarities for College and University Students

Bykova Y.A.

Developmental and Pedagogical Psychology Department
Shadrinsk State Pedagogical University
Shadrinsk, Russia
elbykova80@mail.ru

Atabaeva L.Sh.

Foreign Languages Department
Novosibirsk State Technical University
Novosibirsk, Russia
lo_atabaeva@mail.ru

Abstract—The paper provides the analysis of current state of the problem related to the innovation activity in the education sector. The issue of students' innovation activity including the motivation factor is considered. The aim of the article is to identify the innovation activity peculiarities related to the college and university students. Moreover, the questionnaire is developed to conduct the survey with 412 learners covering the age from 16 up to 22 in different educational facilities. The article presents the research outcomes of the students' innovation activity coupled with their innovation activity level including their perception towards the innovation activity nature as well as the conditions influencing the activity. As the result of the survey conducted the students' involvement and the willingness to be engaged in the innovation activity is proved.

Keywords—*innovation, innovation activity, motivation, innovative potential, innovation activity peculiarities, questionnaire*

I. INTRODUCTION

Today, the problem of innovation activity within the education framework is one of the topical as the state faces the challenge of setting up the innovation economy and training of the personnel to be innovatively developed for the industry, business and economy and science spheres. The concept "innovation" refers not only to a new thing to be created and disseminated but also to such changes that have both a fundamental nature and are accompanied with a way of action and direction in thinking [1].

Innovation is used synonymously with the advanced technology, creativity, novelty, clever solutions, inventions irrespective of their value, and simply something, that is new [2].

For the purpose of the effective innovation activity to be implemented, a student needs to have a high level of personality development. Thus, the relevant direction of innovation processes research is a personality determinants study ensuring the success within the innovation activity. Due to it, the number of current studies is dedicated to the "innovation personality" notion development (E. Hagen, V.N. Shevchenko, E.I. Fedak, S.V. Cencerya) [3, 4].

The innovative thinking formation, creative self-improvement requirements, self-manifestation, innovation activity development are initiated at the level of basic, secondary and higher education.

The innovation activity represents the system of interconnected actions aimed at the current education practices transformation, which can solve current problems in the education. According to V.S. Lazarev and B.P. Martirosyan, the innovation serves to remove the inconsistencies between the desired and the actual requiring some specific innovation changes [5].

N.I. Lapin indicates that the innovation activity is a people object and practical-productive activity of a creative nature and produces a new quality of their life in various spheres. Considering the concept system of the innovation activity, N.I. Lapin emphasizes the productive nature of the innovation activity [6].

Compared to the reproductive activity, which is based on the developed mechanisms repetition and is aimed at obtaining of the available results through available means, the innovation activity is always linked to the elaboration of new targets and appropriate means or achievement of current targets through new means. Its necessary component is a creativity including self-development of innovative personality. Thus, in order to be engaged in the innovation activity a subject (person) changes not only its subject matter but its ends and means and, in that way, he changes himself consciously or unconsciously making himself as an object of his own activity and develops himself as the innovative personality [6].

The students' innovation activity is considered as a self-study productive, creative, targeted activity where a student, using new means to achieve the activity targets, is developed as a subject of the innovation and an innovation personality. The innovation activity outcome is a new educational product and new subject knowledge creation. As noted in [7], new knowledge is created in three ways: "through discovery - stumbling upon something that solves a problem; through experimentation - trying different approaches to a problem until the solution is found; and through synthesis - combining existing knowledge to create new knowledge". Such an activity could be expressed in terms of both individual and collective nature [8].

The innovation activity includes the students' research consisting of two types in a higher education facility: specified by a current curriculum and a research work, which is in excess of the curriculum requirements. More or less, the research work

of the first type includes all students (the research includes a course and diploma paper production. The effectiveness of the education product, its novelty and authenticity are entirely defined by the students' intellectual contribution towards their training through the creative approach, success achievement motivation, abilities and interests.

II. LEARNERS INNOVATION ACTIVITY

Russian and foreign psychology proved that the crucial factor of any human productive activity is a motivation. In other words, the appropriate motivation is able to encourage a person to solve difficult problems. While considering the motivation it is necessary to be focused on the factors, which make a person act. The major ones are needs, motivations and incentives [9, 10].

One of the most popular motivation theories is an A. Maslow's classification of needs. It represents the hierarchy and interconnection of the needs being divided into primary (physiological) and secondary (psychological) ones. The needs can be met by the rewards, which are considered to be valuable by the person. People have different values and, hence, the values can be different as well. The sense of work significance, taking pleasure from the work itself and communicating with colleagues could serve as an "internal" reward for the student. "External" rewards are marks, ratings and social status and prestige symbols. Such problem statement allows one to define the motivation as a factor affecting the learners both innovation activity effectiveness and level of innovation activity. The motivation is determined as the process as the result of which the innovation activity in itself takes a personal meaning for the individual creating stability of his interest towards it (motivation) [11].

The learners' involvement in the innovation activity, in particular, in the innovation projects competitions and idea awards, promotes the formation of their active stand in life as well as adequate attitude towards innovation perception and production as well as special type of the behavior creation which is called in the science as innovative [12].

The learners' involvement in a creative, research activity environment to solve challenging issues results in their self-study development, commitment, positive-oriented motivation, creative abilities and innovative nature of thinking. The outcome of this activity becomes a creative product of original and individual nature.

As the result of the work done the students personal innovative fulfillment takes place, which is represented by the personality integrative characteristics combining personal peculiarities, qualities and abilities ensuring its psychological readiness (willingness) to generate new forms of the activity to create, master and disseminate the innovation educational product including self-development and personal advancement as a strategic factor of the productive pedagogical activity. It consists of the following components: innovation orientation, innovation competence, innovation creativity as the ability

based on pedagogic generation creativity and innovation implementation.

The current studies show that the most students have dominating motive of diploma obtaining while the motives of knowledge gaining and profession mastering do not occupy key positions within the motivation sphere structure [13].

However, despite quite wide range of studies based on the innovation problems in the education, the issue of students' insufficient innovation activity, a low motivation towards innovation projects involvement remains pending.

The innovation activity covers only some of the learners and, as a rule, they are the best school, college and university students having the advantage of high progress in the studies and creative potential. The majority prefers sitting back and is more concerned with successful and easy graduating from any educational facility. In this context, the education facility authorities do not often contribute to the increase of the pupils and students being involved in the active social position and being capable of creating the new and creative projects and the innovation products. However, it is they make the future and innovation potential of our state [14].

Thus, the contradiction occurs between the learners' innovation activity increase requirement on the one hand, and on the other, funds lacking as well as stimulating methods of students being involved in the innovation activity in a particular education facility.

The requirement of learners' innovation activity study could be attributed to the optimization necessity and the educational process efficiency increase aimed at overcoming obstacles related to the self-reliance of the learners being engaged in a new, creative type of the activity.

From our point of view, the students with the low creative capacity, an inadequate developed self-direction and self-confidence, commitments, motivation cognitive activity have less opportunities to achieve high results in the innovation activity and become more competitive at the labor market after graduating from the educational facility than those ones who at early years already have started to be intellectually active and curious. And, the requirement to be successful and committed, does not mean that the first ones will not experience the future difficulties in the achievement of success.

The relevance of the issue specifies the purpose of our study: to identify the motivation and to apply it to the learners' innovation activity and innovation activity peculiarities. 412 college and university students at the age from 16 up to 22 were engaged in the survey.

As pointed out in [15] "It is necessary for universities to make changes in their education content, settings, and targets to support entrepreneurship and innovation. As it is not possible for students to reach a level at which they can be innovative just through their efforts at university, creative thinking should also be developed through creativity education and creative teaching at all education levels starting from kindergarten.

III. METHODS AND MATERIALS

To achieve the target set we designed the questionnaire with the number of questions related to the scope of learners' participation in the innovation activity, their interest with creative projects, competitions and their participation frequency in the innovation projects offered by their teachers and lecturers.

We took interest in the motivation peculiarities of the students towards the innovation activity as well as a level of their innovation activity in their educational facility. We tried to figure out if the learners liked the innovation activity as itself, the way it was arranged in their educational institution as well as what opportunities and prospects they could anticipate for themselves to implement new projects.

The proposed questionnaires contained the question about the students' stimulation methods affecting their innovation activity level (material rewards (incentives) and the opportunity of self-showing, etc.) in their educational facilities.

IV. RESULTS

Questionnaire results processing identified the majority of the students who took an interest to the innovation activity but the innovation activity level and the motivation towards the activity faces a number of differences.

Many learners (87.22%) noted that since childhood they liked thinking of something new and interesting. Most of the students (63.33%) also indicated that they had to take part in such activity as the result of which there was quite a new product or project to be created. 35.56% of the students noticed that they had never participated in a such-like activity. In this case, 1.11% of respondents regretted of lacking such creative experience. Thus, it could be assumed that there were a number of students who were not involved in the innovation events, but there were some students who potentially somehow desired to prove themselves but, due to some reasons, remained unengaged.

Half of the respondents (46.67%) of each educational institution indicated that they were interested in creative tasks, uncommon projects and competitions where they were invited to participate in. One third of the surveyed respondents (27.22%) got interested in such assignments if any additional rewards could be provided for their tasks done. They were willing to implement only those creative tasks, which the rewards and incentives were promised for them to be available. Part of the respondents noticed that it would be enough for them to get a diploma as an incentive. The material incentive does not always play a crucial role for the students to be involved in the innovation activity. The decision to enter the project has the only reason to get interested in the research subject.

It is necessary to note that a large number of students (20.56%) did not take an interest at all to be involved in the innovation activity.

But for the majority of boys and girls (65.56%) the participation in a new college and university projects is an

opportunity to show oneself and to learn something new. 30% of learners are not focused on such thing.

The question is "If a teacher offers to participate in a new or a creative project, I will be ready to take responsibility to implement it". 34.44% of the surveyed responded affirmatively. 28.33% were ready to enter the project if there would be additional incentives. Quite a large number of respondents (32.78%) replied negatively. In this regard they indicated that it would be possible to take part in the project but they would not take responsibility. That is, we can conclude that the definition "responsibility" emerging in the question decreases the learners' interest towards participation in a project or a study offered by a teacher.

Answering the question about the possibility of self-realization in the educational institution many students (71.67%) indicated that their educational institution promoted a creative and innovation thinking for the learners and attracted them to be involved in the innovation activity. Part of the learners (23.33%) did not think so. 19.44% of the students thought, however, that they were not engaged enough in the activity as (contests, competitions, projects and researches) in their educational facility.

On the whole, 78.33% of the surveyed replied that the work of teaching staff and authorities to attract students to the innovation activity suited them enough. Answering the question: "Which innovation activities did you participate?" the students pointed out the following: research works, project competitions, participation in the conferences, etc. Such sampling made 47.22%. Many respondents referred to sport competitions, contests and students large-scale cultural entertaining events and contests as the innovation activity. Based on this, we can make a conclusion that not every college and university student has a clear understanding of the meaning and sense of the innovation activity and innovation competitions. In addition, as the result of the survey there were some students identified (52.78%) who were not involved in either contests or got interested in the innovation activity. It is an indication of motivation lacking or insufficient teaching staff work to attract the students to such an activity in the educational facility.

A common sampling analysis enabled to separate three groups of the learners against their innovation activity and enthusiasm level. The first group (26.98%) included the students being ready to be actively participate in any new activity as the result of which there was a research based product, creative project, etc. They claimed that they took a task offered by a teacher with pleasure and interest and they were not interested with the material incentive at all. The representatives of this group also enumerated the numbers of activities where they had already participated in and achieved some results (researches, project competitions, participation in the conferences, etc.).

The second group (49.6%) consisted of the learners who would love to participate in the competitions and projects but did not do it as they did not have an experienced mentor or they

were not so much engaged in the innovation activity exercise at their educational institution. We made a conclusion that this group was potentially ready but due to some reasons turned to be unengaged in the innovation activity. The learners require a special attention and assistance from a teaching staff for the innovation activity to be increased. Since only motivation is high, that does not go beyond the desires. It is a behavioral component that seems to be irrelevant. It is necessary to note that this group of learners is the largest one both at the college and at the university level.

The third group (2.34%) covered the respondents with a low level of motivation and innovation activity. They claimed that they were not interested with the innovation activity and they refused participating in projects and competitions as well as in all activities offered by the teachers.

V. CONCLUSION

Thus, the conducted survey showed that the students' motivation had its own peculiarities with regards to the innovation activity. Most of the students have an active position towards different creative tasks, competitions and research projects. A large number of students are ready to be involved in a similar activity but part of them are willing to be engaged only in interesting projects and part of them deal with activities because they are activists and part of learners are ready to do these tasks for additional incentives to be awarded.

It can be noted that the students have different types of motivation of the innovation activity: cognitive (the possibility to learn something), social (to show oneself, stand out from the crowd), material (incentives), as well as motives of self-development and achievement.

Nevertheless, the sampling shows that among the students there are the most ones who do not show their innovation activity, who show a complete indifference towards innovation activity and who have negative attitude towards their educational establishment. They indicate that their educational institution does not develop at all their innovation thinking and does not attract them to new types of the activity. From our point of view, this group of students requires a special attention from the teachers' side since their creative potential and activity need to be developed and additionally stimulated.

We can make the conclusion that to make the learners to become motivated towards the innovation activity; it is important to create a support-oriented environment on the teachers and authorities' part. The teachers need to provide and support psychological guidance of the educational process where step-by-step development of personality qualities is taken place including thinking and behavior being necessary for

the effective involvement in the innovation activity. Upon condition and availability of moral and material incentives, the competitive spirit is a crucial element including learners' professional motives formation towards innovation activity and personality self-realization motives.

Acknowledgment

The research was implemented under the grant financial support of "Shadrinsk State Pedagogical University", Agreement No. 110H as of 11.03.2019

References

- [1] E.A. Shmeleva, "Development of innovative potential of the person in the scientific and educational environment of pedagogical high school", Dissertation, Nizhny Novgorod, 2013.
- [2] B. Banerjee, "Why Innovate?" Creating innovation leaders, Springer International Publishing, 2016, pp. 3-24. Retrieved from: <https://www.springer.com/gp/book/9783319205199>
- [3] J. Brennan, S. Broek, N. Durazzi, B. Kamphuis, M. Ranga and S. Ryan, "Study on innovation in higher education: final report," European Commission Directorate for Education and Training Study on Innovation in Higher Education, Publications Office of the European Union, Luxembourg, 2014.
- [4] Fuat Fındıkoğlu and Dilek İlhan, "Realization of a Desired Future: Innovation in Education", Universal Journal of Educational Research, vol. 4(11), 2016.
- [5] E.I. Artamonova, "Teacher training for innovative activity in modern University", Pedagogical education and science, vol. 6, pp. 86-97, 2016.
- [6] N.I. Lapin, "Theory and practice of innovation: studies", Manual for universities, 2nd ed., Moscow: Logos, 2010.
- [7] B. Burnett, "Building new knowledge and the role of synthesis in innovation", International Journal of Innovation Science, vol. 1, no. 1, pp. 13-27, 2009.
- [8] Yu.V. Ziborova, "Psychological features of formation of innovative position of students-future psychologists of education", Dissertation, Kursk, 2012.
- [9] E.V. Galazhinsky, "Psychology of innovative behavior", Tomsk, 2009.
- [10] L.K. Komenska, "Moral motivation in humanitarian actions", Human Affairs, vol. 27, no. 2, pp. 145-154, 2017.
- [11] L.I. Viderker, "Motivation as a factor of increasing innovative activity of students", Philosophy of education, vol. 4, no. 43, pp. 137-144, 2012.
- [12] V.N. Shevshchenko, "Innovation personality as a social type", Scientific bulletins of the Belgorod State University. Series: Philosophy. Sociology. Law, vol. 11, no. 2, pp. 37-51, 2010.
- [13] L.V. Maltseva and A.Y. Suslov, "Study of the motivational sphere of students in the learning process in higher education Institution", Bulletin of Kurgan state University. Series "Physiology, psychology, medicine," Iss. 9, vol. 3, pp. 63-68, 2017.
- [14] Y.A. Bykova and S.V. Istomina, "Perceptions of the innovative potential of students by teachers of general, secondary vocational and higher education institutions", Journal of Pharmaceutical Sciences and Research, vol. 10 (8), pp. 2030-2033, 2018.
- [15] A.E. Aslan, B. Duman, D. Sen and C. Duran, "A pilot study on the perception of innovation and entrepreneurship", Eurasian journal of educational research, vol. 64, pp. 139-156, 2016.