

The Fostering of Motivation for Innovative Activity in Future Agriculture Specialists as a Pedagogical Issue

El fomento de la motivación para la actividad innovadora en futuros especialistas en agricultura como problema pedagógico

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ABSTRACT:

The problem and the objective. The search for effective methods, technology, and approaches that could facilitate fostering a new generation of specialists who will be capable of retooling quickly in keeping with the needs of the labor market is a crucial objective set before the system of higher agricultural education. A possible way to succeed in this area is to cultivate motivation for innovative activity in future agriculture specialists as part of the educational process at colleges. *The paper's purpose* is to investigate the content of the concept of 'fostering motivation for innovative activity' through a comprehensive theoretical analysis of the characteristics of the professional preparation of agriculture specialists and of the key issues relating to motivation (E.P. Il'in, S.S. Zanyuk, P.M. Yakobson, N.V. Kostyuk, E.V. Karpova, etc.) and innovative activity (V.S. Belgorodskii, E.S. Bykova, O.S. Zolotukhina, E.N. Ishchenko, E.S. Polat, etc.), as well as to pilot-test a special methodology for diagnosing

RESUMEN:

El problema y el objetivo. La búsqueda de métodos, tecnologías y enfoques eficaces que faciliten el fomento de una nueva generación de especialistas capaces de reacondicionarse rápidamente en función de las necesidades del mercado de trabajo es un objetivo crucial que se plantea al sistema de educación agrícola superior. Una manera posible de tener éxito en esta área es cultivar la motivación para la actividad innovadora en futuros especialistas en agricultura como parte del proceso educativo en los colegios. *El objetivo del trabajo* es investigar el contenido del concepto de "fomentar la motivación para la actividad innovadora" a través de un análisis teórico integral de las características de la preparación profesional de especialistas en agricultura y de las cuestiones clave relacionadas con la motivación (EP Il'in, SS Zanyuk, PM Yakobson, NV Kostyuk, EV Karpova, etc.) y la actividad innovadora (VS Belgorodskii, ES Bykova, OS Zolotukhina, EN Ishchenko, ES Polat, etc.), así como

motivation for innovative activity in future agriculture specialists. *Methodology*. The authors have developed, as their research method for determining the dominant motives for innovative activity, a diagnostic assessment checklist for motivation for innovative activity comprised of 4 groups of motives. The findings of the authors' diagnosis of motivation for innovative activity indicate that professional motives and those of personal self-actualization are not the ones that prevail with future agriculture specialists. Most students tend to give priority to external stimuli and motives of external self-fulfillment, which may be testimony to low levels of motivation for innovative activity. The paper's conclusion brings forth the suggestion to foster this motivation through the concurrent use in class of both well-known and entrenched ways and forms of arranging the learning process and cutting-edge (innovative) learning technology in keeping with students' age characteristics.

Keywords: Agriculture specialist, motivation, innovative activity, motivation for innovative activity

para probar una metodología especial para diagnosticar la motivación para Actividad innovadora en futuros especialistas en agricultura. *Metodología*. Los autores han desarrollado, como su método de investigación para determinar los motivos dominantes para la actividad innovadora, una lista de control de evaluación diagnóstica para la motivación de la actividad innovadora, compuesta por 4 grupos de motivos. Los hallazgos del diagnóstico de motivación por la actividad innovadora de los autores indican que los motivos profesionales y los de auto-actualización personal no son los que prevalecen con los futuros especialistas en agricultura. La mayoría de los estudiantes tienden a dar prioridad a los estímulos externos y los motivos de la auto-realización externa, lo que puede ser testimonio de bajos niveles de motivación para la actividad innovadora. La conclusión del documento da a conocer la sugerencia de fomentar esta motivación mediante el uso concurrente en clase de formas bien conocidas y arraigadas de organizar el proceso de aprendizaje y la tecnología de aprendizaje innovadora de acuerdo con las características de edad de los estudiantes.

Palabras clave: Especialista en agricultura, motivación, actividad innovadora, motivación para la actividad innovadora

1. Introduction

A key objective for almost every nation in the world is to prepare – through education – pools of innovative professionals capable and desirous of working and absorbing changes and innovations associated with technology, information, knowledge, and the very circumstances of life (Geiger, 2004, p. 43). The availability of competent, well-educated, creative, and ready-to-innovate agriculture specialists is a formula for success for any agricultural enterprise and the nation's agro-industrial complex as a whole. Considering this, the educational process ought to be aimed at fostering specialists who will both have the necessary knowledge, abilities, and skills to perform relevant professional duties and be creative, open to looking at things in new ways, and capable of coping with unusual professional situations. The success of the process of cultivating such abilities in students depends directly on their levels of motivation for innovative activity.

The profession of agriculture specialist is among the most unique in the breadth and diversity of requirements. Today's economic conditions are characterized by considerable increase in the relative share of the business and organizational components of human activity. The key objective for agricultural education is to create a system for preparing specialists who would be capable of engaging in efficient business activity in a climate of new social-economic realities. To this end, it may help to considerably step up, without shrinking the levels of technological preparation, the levels of practical business, organizational, legal, and psychological preparation of agriculture specialists (Tikhonova, 2012, p. 19).

The changes in economic relations in rural areas and the shift to new agricultural relations are signaling the need to alter the character and content of labor and, consequently, overhaul the current system of preparation of agriculture specialists. Under a market economy, there arises the need to institute wider economic training for students at institutions of higher agricultural learning, adopt novel integrated approaches to developing curricula, textbooks, and learning aids, and update the content and methodology of teaching (Lachuga & Kuznetsov, 2003, pp. 18–19).

The social-economic changes taking place in the country at the moment are signaling the need for upgraded approaches to enhancing the system of personnel training in agriculture as well. These changes are causing certain traditional professions to either vanish altogether or take on new forms, with new ones emerging all the time. Also changing are requirements to present-

day agriculture specialists: their qualifications, command of the latest progressive technology for developing competitive products, ability to quickly adapt to new business conditions, and ability to efficiently manage enterprises and teams of agricultural personnel (Simbirskikh & Suvorova, 2008, p. 122).

The previous paradigm of professional education, according to some researchers (Kvochkin & Simbirskikh, 2012), was oriented toward quite a stable character of future professional activity. This no longer works under today's conditions and is out of keeping with the realities of present-day markets for labor, which require that specialists be prepared and aspire to continually learn new things and perfect their skills, gain proficiency in various areas of activity and possess a certain amount of integrated knowledge in the area of innovative technology.

The above naturally signals the need to cultivate motivation for innovative activity in future agriculture specialists.

The issue of the role of motivation has been given a great deal of attention by psychologists and pedagogues, as it helps ensure that one successfully gains command of relevant knowledge and skills. Most research into people's behavior and analysis of their needs and motives leading to specific deeds will always be centered around motivation. Scholars construe the term 'motivation' differently: some view it as a system of factors urging one to perform a certain action (Il'in, 2003), while others think of it as stimulating a person (a student, a worker, etc.) with a view to getting them to achieve a goal (Zanyuk, 2002). A pedagogical encyclopedia defines "motivation" as a system of motives, stimuli, and urges driving human behavior and activity (Kairov & Petrov, 1965).

P.M. Yakobson views motivation for learning as, on the one hand, the result of processing the influences to which the learner is exposed within the family and social sphere, and, on the other hand, as their attitude toward these influences, associated with the characteristics of their life mindsets, desires, and interests. The researcher has identified 3 types of motivation for learning: negative motivation (arises in students who realize they may get in trouble if they do not study, like being subjected to constant reminding, reprimanding, and threats from teachers and parents); motivation that is outside the actual educational activity (one's moral and social motives; one's desire to ensure one's personal well-being); motivation that is laid down in the very educational activity (an aspiration to learn new things and overcome difficulties of an intellectual nature). The scholar is of the opinion that negative motivation for learning will not lead to successful results (Yakobson, 1969).

J.S. Bruner suggests that interest in the material to be learned is the best stimulus to learning (Bruner, 1962). If the student gets to work on an assignment that is of no interest to them, their learning activity has no relevant motive. Yet, there can be other motives, like a desire to achieve a success or to be done with a boring assignment as soon as possible. During the process of learning a foreign language, it will be possible to succeed in fostering motivation only if learners take an active part in the process.

Scholar N.V. Kostyuk is of the opinion that any activity by people is always polymotivated, i.e. it is substantiated and driven by various motives. The hierarchy of these motives is formed during the process of one's development in quite an unregulated fashion under the influence of external and internal factors (Kostyuk, 2005).

Based on her research on motives for learning, scholar E.V. Karpova has brought forward 4 groups of motives (Karpova, 2012):

- 1) motives of achievement, which govern activity aimed at achieving robust activity outcomes and satisfied through the realization of the successfulness of one's activity;
- 2) cognitive motives, which beget activity aimed at obtaining new knowledge and gaining an insight into certain phenomena and the actualization whereof is associated with the realization of the feeling of satisfaction from discovering something new, not known before;
- 3) educational motives, which facilitate activity aimed at enhancing existing ways of learning.

The motive is satisfied through the awareness of that the new ways of learning have been assimilated already;

4) educational-professional motives, which beget activity aimed at cultivating in one the qualities needed for one's future professional career.

V.G. Aseev differentiates between negative and positive motivation, suggesting that motivation is associated with a person's emotions and cannot exist outside of the emotional sphere. Furthermore, into the concept of motivation the researcher incorporates urges, motives, needs, interests, goals, motivational mindsets, etc. (Aseev, 1976). D.A. Melamed has, likewise, suggested the existence of positive and negative motivation. The scholar construes negative motivation as "an urge that can be aroused by one's awareness of the possibility of certain inconveniences and punishments that may occur in the event of failure to perform an activity. Forefeeling trouble and punishment is what stimulates one to activity, when there is negative motivation at play" (Melamed, 2011, p. 32).

Some researchers have suggested that it can be possible to develop positive motivation, provided the following principles are actualized in the educational process: learning getting professionalized; the content, forms, and methods of learning being problem-based; learning-cognitive activity being of a creative nature; learning being dialogue-based (Agapova & Aisner, 2011, p. 58). These principles can be carried into effect by means of such forms and methods of learning as business simulation; discussion; imitation; solving professional problems; conversation-based lectures; consultation-like lectures; lectures incorporating elements of brainstorming; etc.

To enable the formation and development of positive motivation for learning, it helps to cultivate in students an idea of future professional activity, provide them with an informed awareness of the objectives for learning, and develop a system of learning actions that will concurrently act as a condition for the formation and development of cognitive motives for learning.

Since this paper deals with motivation for innovative activity specifically, it may be worth conducting a definitive analysis of the term 'innovation'.

Being one of the most significant factors in the transformation of present-day reality, innovation, no doubt, entails special requirements being set for preparing and educating specialists to be active thinkers with a well-developed imagination and a capacity for effective professional activity. This leads to the formation of a new type of person – the innovative person, whose development must take place within a certain educational environment that is in keeping with special requirements (Lew Moi Mooi, 2010). Thus, these days issues related to fostering innovative individuals are among the most fundamental to resolving the issue of developing and implementing in practice an efficient educational process at institutions of higher learning (Bykova, 2015).

The above signals the need to alter existing methods of teaching – transfer them to innovative rails with a view to enhancing the learning process. The issue of implementing innovative methods in the educational process is becoming one of the central topics that are of natural interest to the public. Of course, there are some difficulties in making compromises between traditional and innovative methods of learning. Innovative methods require continued practical verification, and implementing them should not entail dismantling the entire traditional domestic system of education (Belgorodskii, 2007).

Innovative changes in the educational process ought to be predicated on creating or adopting a novel scholarly concept. And innovations ought to be introduced into the educational process in reliance on an updated philosophical foundation of education aligned with today's realities (Tainter, Wong, & Bittner, 2015).

Among the global trends influencing the development of the present-day educational process are the formation of an information society; democratization of social life and development of a civil society; fundamental structural changes in the sphere of employment (Ivashchenko,

Engovatova, & Korostyleva, 2014).

The innovativeness of the educational process consists in incorporating various innovations into the development of pedagogical technologies and turning particular innovations into a mechanism for transforming the educational process, which presupposes the creation of whole new concepts underlying the content and methods of learning (Oguz & Aydin, 2012).

Today, the above innovations are actively implemented by most educational facilities with a view to developing creative thinking in future specialists, cultivating the need for moral and professional self-perfection, and fostering motivation for future activity, as well as the ability to independently find one's way through the overload of information available these days (Dudin, Ivashchenko, Frolova, & Abashidze, 2017).

Thus, innovative methods in education are predicated on the concept of motivation as a way to influence people and promote achieving the required pre-planned results.

Researchers have identified the following types of innovation within the education system:

- intra-subject – innovations implemented around the learning of a specific subject and governed by the characteristics of teaching it, like, for instance, assimilating new proprietary pedagogical methodologies;
- general-subject – innovations presupposing the implementation in the educational process of original pedagogical methods and technologies that could work for most disciplines;
- ideological – innovations driven by changes in people's consciousness that are governed by the spirit of the times (Šooš, Ferencz, & Dugas, 2015).

Innovation and innovative processes related to it have become a common thing in just about any area of human activity, which signals the need for conducting comprehensive investigation into and gaining insight into these phenomena, including in the area of professional education (Avdagovska, Bistriz, Kovacs Burns, Olson, & Gramlich, 2016). A key factor for the continuous development of present-day production systems is the maximum use of the innovation factor. It is innovative activity in the sphere of economics that drives economic growth and boosts in labor productivity in the world's leading countries. With respect to processes of implementation of innovations, education is regarded as a key factor for ensuring them, as it provides the necessary preconditions and conditions for this as well as the essential intellectual groundwork (Hutcheson, 2011).

There are 2 essential conditions for ensuring innovation and innovative activity in the process of professional learning.

The first condition, which deals with the education system proper, presupposes: firstly, the need to consistently introduce into the system of professional education best practices for creating innovative educational methods and methodologies; secondly, the need to promote the acquisition of the skills necessary to manage the development of innovative activity and innovative education among college staff (Tripon, 2014).

The second condition consists in maintaining the indissoluble link with the state's educational policy, which ought to be aimed at government and public support for programs and projects associated with innovative professional education (Chernilevskii, 2002).

Innovative learning technology is a consequence of organizing the educational process in such a way as to employ whole new principles, means, methods, and technology facilitative of achieving an educational effect that is characterized by maximum creative activity and mastery of professional competencies and a wide spectrum of practical abilities (Walder, 2016).

Today, one will be able to develop and construct an educational process that is oriented toward the needs and abilities of every learner based exclusively on the use of innovative educational methods, as traditional methods of learning, which are grounded in the explanatory-illustrative method, do not guarantee bringing out all of the learners' potential and motivating them for learning, which, in turn, affects the quality of knowledge, abilities, and skills they are acquiring

(Jurik, Gröschner, & Seidel, 2014; Olivos et al., 2016).

The authors are of the opinion that the readiness of future agriculture specialists for innovative activity presupposes clear-cut motivation for activity and interest in assimilating innovations, the ability to cope competently with unusual professional situations, being prepared for productive, creative activity, and the ability to perform self-analysis and self-adjustment.

2. Methods

To identify some of the dominant motives for innovative activity, the authors have developed a special diagnostic assessment checklist. The system divides all motives into 4 major groups: external stimuli, motives of external self-fulfillment, professional motives, and motives of personal self-actualization. The respondent students were asked to choose a statement that is in line with their views (Table 1).

Table 1. Diagnostic assessment checklist for capturing the motives for innovative activity

(Pick statements that are most in line with your views)		
External stimuli		
1.	A major incentive for innovating is material remuneration (a student allowance for now, followed by a salary in the future).	
2.	I am prepared for innovation so I could enjoy satisfactory working conditions in the future.	
3.	I take changes in work easy.	
4.	I am quite wary of innovations, as I prefer to stick to traditional ways.	
5.	I am prepared to uphold the introduction of new things more out of service necessity than because I want to.	
6.	If an innovation makes it easier for me to perform my work duties, I am prepared to put up with it.	
Motives of external self-fulfillment		
7.	To me, the principal stimulus to employing an innovation is acknowledgement from colleagues.	
8.	Successful use of new stuff and successful outcomes may help raise my self-esteem.	
9.	I need to be valued by my colleagues (fellow group members).	
10.	I like it when those in charge pay me a compliment if I do a good job.	
11.	My successes at school (work) make my family and friends happy, and that brings me pleasure and satisfaction.	
12.	I am inclined not to make a big deal about a couple of minor difficulties behind the	

	positive sides of my activity.	
Professional motives		
13.	I consider myself a creative person rather than a conservative one.	
14.	I am really interested in certain scientific phenomena, and I always try to gain insight into their essence and nature.	
15.	I would like to start something new and become world-famous through that.	
16.	There is my favorite class which I attend with pleasure and in hopes of learning more and more new stuff.	
17.	I like conducting my own tests and carrying out new experiments.	
18.	I would like to benefit other people, including my colleagues, with my inventions.	
Motives of personal self-actualization		
19.	I always prefer innovations over conservative stuff.	
20.	I am one of those who continually try to find themselves in something new.	
21.	I would rather try something risky but novel than something safe but traditional.	
22.	I enjoy looking for new stuff.	
23.	I sometimes see the same object differently.	
24.	I am not the kind of person who stops trying because they are satisfied with their past achievements.	

3. Results

To gain a better insight into the issue of fostering readiness for innovative activity in future agriculture specialists, it was arranged that the above checklist would be filled out by a pool of agriculture students arranged into 4 educational groups. The outcomes of this diagnostic assessment are provided in Table 2.

Table 2. Outcomes of the authors' diagnostic assessment

Motives	Group I (50 people)		Group II (45 people)		Group III (40 people)		Group IV (39 people)	
	people	%	people	%	people	%	people	%
external stimuli	10	20	6	13.33	10	25	7	17.95

of external self-fulfillment	18	36	22	14.89	12	30	15	38.46
professional	15	30	14	33.11	12	30	10	25.64
of personal self-actualization	7	14	3	6.67	6	15	7	17.95

As is evidenced from the above table, students, whose dominant motives are external stimuli, are distinguished by low levels of openness to innovation and a lack of aspiration to pursue personal-professional growth.

Respondents characterized by the prevalence of motives of external self-fulfillment were found to be willing to change something in their line of work only for the sake of getting acknowledgement from their colleagues, prestige, and boosts in their self-appraisal.

The fact that some of the students went with the professional motive for innovative activity may be testimony to: one's need for creative activity; one's willingness to create something novel or unknown so far; one's willingness to get insight into a certain process or phenomenon on their own; one's being aware of the need to engage in innovative activity; one's ability to anticipate the results of potential innovative activity.

Those distinguished by the prevalence of motives of personal self-actualization were found to possess considerable creative potential and willingness to pursue something new.

Students driven by the last two motives demonstrated high levels of psychological readiness for innovation and, accordingly, innovative activity.

However, based on the study's findings obtained at the beginning of the authors' pedagogical experiment, professional motives and motives of personal self-actualization are not a priority with future agriculture specialists. Most students tend to give priority to external stimuli and motives of external self-fulfillment. This leads to the conclusion that future agriculture specialists are currently characterized by low levels of motivation for innovative activity.

Any area of agricultural production needs specialists who will be prepared to create and implement innovations in the production process, i.e. those ready to engage in innovative activity. Evidence from practice suggests that the above fact does not always constitute sufficient motivation for agriculture students, as many of them appear to lack a coherent vision of the future. In this regard, it is therefore crucial that the pedagogue helps the student learn to use innovative technology and methods first at school and then on the shop floor, as well as helps develop their motivation for innovative activity and provides them with the relevant knowledge, abilities, and skills aligned with the needs and demands of the labor market.

4. Conclusion

Fostering motivation for innovative activity is a complex and stagewise process that will hardly work without the engagement of one's powerful inner motives. Accordingly, cultivating these motives must be a top priority in the learning process.

The authors suggest cultivating this motivation in a systematic fashion. This could be possible, provided one concurrently employs in class not only well-known and entrenched methods and forms of learning, but cutting-edge (innovative) learning technology as well. In particular, alongside lectures, practicals and combined classes, it may help to employ discussion, brainstorming, the case method, didactic games, the project method, etc. To the authors, the way to systematically foster readiness for innovative activity in future agriculture specialists is to cultivate it in a stagewise fashion in keeping with learners' age characteristics.

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