

RESEARCH ARTICLE

Pedagogical Support is a Necessary Condition for Creation and Development of a System of Lifelong Rural Education Providing the Training of High-quality Agricultural Specialists

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ABSTRACT

Currently, there are two main options for training agricultural specialists in the Russian Federation. The first option is studying in a college (technical school) or mastering university programs through bachelor's, specialist and master's programs. The second way is to form a stepwise organisation of continuous agricultural education: a specialised general education school, a college (technical school), a university, and an institution of additional professional education. Insufficient attention to the change and development of new social statuses by students makes it difficult to fully disclose the educational potential of the system of continuous agricultural education. Thus, it is necessary to organize pedagogical support for students' adaptation to current changing academic situations. It is also essential to consider lifelong agricultural education not only as advanced training in the workplace, but also as a transition from specialized training in a secondary general education school to secondary agricultural vocational education, and then to the development of programs of higher agricultural education and subsequent regular, professional development throughout the entire period professional activity.

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Introduction

Solving the Russian Federation's food security problems and providing the population with high-quality agricultural products revealed a shortage of specialists with high competencies in the farm sector. In this regard, there was a need to study the process of training agricultural personnel, taking into account the possibilities of continuous education. However, there is no consensus regarding approaches to the organisation of constant agrarian education.

A specific group of scientists, politicians, and practitioners have promoted and supported lifelong education. The essence of this idea is that people need to continue their education after receiving professional education, confirmed by certificates and diplomas. This may also be associated with obtaining a second professional education and mastering nonformal education programs (language courses, classes in sports clubs or community centres, etc.). First of all, a person should engage in self-education to improve qualifications and improve family relations and leisure forms (Salnikov, 2003).

The second group of researchers and practitioners was engaged in unlocking the potential of lifelong education. This group argues that lifelong vocational education should be seen as "bringing" universal vocational training to the

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requirements specific to a particular field of work, through training in organisations for advanced training and retraining (Klyucharev 2005). Moreover, additional professional education is actively supplemented by coaching, which is based on identifying a young specialist's personal potential in the workplace. Taking this into account, it offers an individual program for the development of professional competencies.

The third group of scientists and specialists proves that continuing professional education (CPE) and highly competent specialists depend directly on the pre-university stage: additional education of schoolchildren in circles, studies and centres of children's creativity, specialised training in a general education school and training in secondary vocational educational organisations (Teslinov *et al.*, 2014).

Simultaneously, all indicated groups of experimenters ignore the complexity of students' difficulties when entering a new level of education and mastering their characteristic social status. In other words, yesterday I was a student of a specialised agricultural class, and now he is a college student; yesterday I was a college student, and today I study at a higher educational institution; yesterday he worked at the enterprise, and today he is mastering a training program.

In this regard, it is necessary to clarify that in our study, social status is considered as a vital component of the image of the subject of cognition, prescribing a certain level of independence and responsibility. The validity of this point of view is confirmed in other studies (Pokholkov 2012). Nevertheless, practically all currently existing models of development and improvement of vocational training lose sight of the gap that forms between the past and future social statuses of students, contributing to the emergence of new challenges, with which not every student can successfully cope on their own (according to some data, 10 - 15% of graduates of general education schools are expelled from institutions of secondary vocational education, and 15 - 20% of students are expelled from the 1st year of the university (Fedotova 2016). These and other data convincingly indicate the need for pedagogical support in the organisation of continuous agricultural education, because after the ascent of students to a new educational stage, for successful learning, they will need to achieve the social status inherent in this academic stage and master the corresponding social role (behaviour model).

Experimental Methods

The specificity of the present study is based on the choice of experimental methods. A statement experiment was used to collect and accumulate experimental data to develop and implement the pedagogical support model. Practical learning was also used as a formative experiment to confirm the effectiveness of conditions conducive to the achievement of new social statuses and the development of students' actual activities that they need for sustainable advancement at all levels of continuous agricultural system education.

Correlation analysis was used to obtain data that could confirm or deny the effectiveness of experimental learning. During the experiment, it was possible to establish a linear relationship between students' negative expectations in agricultural direction education and their anxiety level using Pearson's selective correlation coefficient (r). The data obtained made it possible to design the necessary measures for the pedagogical support of agroprofiling training and achieve a positive level of emotional comfort among students of the agroprofiling class, which they need for productive professional self-determination.

The correlation analysis made it possible to establish the relationship between education conditions and the state of discomfort, maladjustment that arose in graduates of agro professionals' classes who enrolled in an agricultural college. Timely organized pedagogical support, such as the refusal of double lessons in the first semester and the conduct of generalized repetitive courses in mathematics and the Russian language, contributed to the rapid and painless achievement of the appropriate social status by students, which they need for successful study in an institution of SVE (secondary vocational education) of agricultural profile.

Within the continuous agricultural education system framework, conflict situations arose between students of courses and between students and teachers (the level of advanced training). The authors (Bordovskaya N.V., Rean A.A.) used the methodology for diagnosing the collective socio-psychological climate to determine the causes of the conflict in the form of testing. Based on these tests, when processing the results, the authors created a short description of a group of students. They identified the features of the reflection of existing interpersonal relationships, taking into account the emotional, cognitive and behavioural components. The study's processed results formed the basis for developing measures for the educational process's pedagogical support, carried out in the courses of advanced training for specialists in the agricultural sector. Implementing the actions of pedagogical backing made it possible to significantly improve the group's social and psychological climate and, thus, influence training effectiveness.

Results and Discussion

To better understand the relevance of pedagogical support when students change social statuses, one should turn to human social development history. It is known that already in primitive tribes, obligatory rituals were carried out everywhere, in which a person's transition from a child's social status to an adult state was noted. Moreover, the models and motives characteristic of the initiation of maturity in primitive societies were reproduced in special rituals of the classical period, and, sometimes, are recreated in modern conditions (the ritual "bar mitzvah" in Jewish culture) (Pokholkov *et al.*, 2015). The reason for such a long, even by historical standards, "attachment" to such ceremonies is because, as a result of initiation procedures, fears and anxiety are weakened, and young people more

efficiently and more smoothly experience the change of social status.

These and other facts revealed during our research contributed to analysing the essence of pedagogical support, structure, content, and functions for the subsequent application of the data obtained in implementing an experimental model of continuous agricultural education.

In the stepwise model of continuous agricultural education, the first phase is specialised training. It is here that students of the senior classes of secondary schools face a different system of organising classes, get acquainted with new forms and methods of presenting educational materials, and master a larger volume and level of complexity of the content of an agricultural course. Besides, training in the agro-profile class is associated with a new composition of students and teaching teams. Changes in the teaching load and environmental factors, supplemented by the uncertainty of ideas about the values of new classmates and teachers' requirements of the agro professional's course, contribute to the emergence of a state of discomfort, making it challenging to make right decisions (Kalber 2012; Logutova 2015).

According to the data given in the abstract of author (Kuznetsova E.N.) students of specialized classes in comparison with students of general education classes have higher values on the following scales: "Disadaptation" ($p < 0.001$), "Self-rejection" ($p < 0.001$), "Rejection of others" ($p < 0.001$), "Emotional discomfort" ($p < 0.001$), "External control" ($p < 0.001$), "Inability to manage" ($p < 0.001$), "Escapism" ($p < 0.05$). At the same time, there are lower results on such scales as: "Adaptability" ($p < 0.001$), "Acceptance of oneself" ($p < 0.001$), "Acceptance of others" ($p < 0.001$), "Emotional comfort" ($p < 0.001$), "Dominance" ($p < 0.05$) (Kuznetsova 2010). Comparing the results of specialised classes with general education classes results indicates a deterioration in emotional comfort, an increase in criticality towards oneself and others among schoolchildren mastering a specialised education. Among the personal qualities of senior pupils of a specialised school, the following indicators can be noted: avoidance of problems, inability to manage emotions. Therefore, it is no coincidence that external motives are of great importance for an agricultural school's senior pupils.

Thus, organising pedagogical support in the implementation of agroprofile education in a general education school arises. To effectively use the resource of pedagogical support, it is necessary to identify its essence, structure, and content. Therefore, for example, the athour (Glazova Ya.A.), analyzing the differences in the views of scientists on the importance, construction, and range of pedagogical support, highlights the following approaches to their definition:

1. Pedagogical support as a set of individual measures (means, forms, and methods);
2. Pedagogical support as a set of conditions and specific standards;
3. Pedagogical support as one particular type of pedagogical activity (Glazova 2015).

The author of the above publication made his choice in favour of the third approach. In the present study, when

choosing the definition of pedagogical support, preference was also given to this aspect, which defines pedagogical support as a specific type of activity. From our perspective, the activity's specificity should consist of teachers and students' joint actions to identify and use a systematic set of resources (personal, institutional, and environmental) to overcome the difficulties that arise in agroprofile training.

The identified need of students of agro-profile classes for external motivation and the chosen approach in determining pedagogical support allowed us to put forward the following hypothesis: the adaptation of pupils of agro-profile classes to the changed learning conditions will be successful if teachers and students are focused on:

- The joint overcoming of educational situations that contribute to the alienation of students with pedagogical influences carried out to achieve the goals of specialised education;
- A joint discussion of students' problems and development of an action plan to overcome them;
- Joint search for personally significant meanings of agroprofile education.

This hypothesis acquires special relevance because, unfortunately, not a joint activity, but pedagogical influence prevails to this day in the arsenal of teachers' techniques, since, according to teachers, it is the fastest way to solve immediate tactical problems related to weapons students with knowledge, teaching specific actions, belief in the appropriateness of performing some exercises, etc. From our perspective, the abuse of pedagogical influence in the educational process for a supposedly quick solution of tactical problems often leads students to a loss of initiative, faith in themselves, and sometimes to the manifestation of negativism even aggressiveness.

Therefore, it is no coincidence that progressive pedagogy orients teachers towards organising joint activities with students, in which the teacher and the student are subjects of the educational process. For the collective action of teachers and students in agro-profile classes to be the predominant method of scholarly activity, it is necessary, first of all, to focus on the adoption of a common goal and the awareness of the subjects of their contribution to the study of the Agro-profile course, etc. This becomes possible if the feedback is established between the teacher and the students during the interaction. The emergence of high-quality feedback that meets the teacher and the students' internal expectations, in particular, can be favoured by a joint choice of the purpose of the lesson. Therefore, when studying the plant-growing topic "Types of hybridisation used in plant breeding", discussing the goals proposed by the teacher "Establish what the similarities and differences between monohybrid and dihybrid crossings" and "Identify general patterns of poly hybrid crossing by comparing monohybrid and dihybrid crossing", students, how as a rule, the second target was chosen are. In our opinion, this preference is because one of the necessary conditions for accepting the fewer poly hybrids is the reliance on the leading type of activity. In adolescence, it is spontaneous experimentation (Gaag & Medentsev 2019). Consequently, students' primary interest in the second goal critical up a broader horizon for them to experiment. In the given an

example, the choice of the purpose of a training lesson on plant growing reflects the two-sided nature of the joint activity, which is its fundamental characteristic. In other words, since the teacher and students take part in the choice of the goal, therefore, the changes will affect both sides: the plan chosen during joint activities becomes personally significant for the students, and for the teacher, the interaction with students is filled with a deeper meaning than pedagogical influence.

One of our study's objectives was to track the development of students' search activity in the Agro-profile class through joint activities. Students were asked to identify a biological object based on a verbal description. Since the report was based on poorly defined features, the schoolchildren had a problem with overcoming the information deficit. During the teacher and students' joint activity, rational methods of finding the missing information and structuring were determined. After that, the students competently continued to work on identifying the biological object. Although they were given the right to stop searching when new difficulties arose, none of the students stopped working. All students completed the proposed task.

Students of agro-profile classes showed a low indicator on the adaptability scale ($p < 0.001$), indicating the emotional instability of students, particularly anxiety. During this study, as a result of determining the Pearson coefficient, correlations were revealed between negative expectations from agro professional training and the current level of anxiety ("I think that vocational training does not open up new prospects for me in my future professional activities", which indicated a direct connection of this answer with low adaptability to agroprofile training. The subsequent stage of joint activities of the teacher and students, associated with identifying personally significant agroprofile practice meanings, contributed to a sharp decrease in anxiety levels since students began to accept training in an agroprofile class as a real preparation for future agrarian activities.

The above examples convincingly show the importance of pedagogical support elements during the development of a new social status by students of a public education school, due to their admission to an agricultural class. Mastering students' group in the profile class, schoolchildren begin to fulfil the role prescriptions characteristic of Agro professionals' education, which are assigned to this social position (increasing the volume of experimental activities, mastering a research position, and preparing for the professional move, etc.) (Efendieva 2014). Due to this, students of Agro-profile classes' attitudes become more conscious and adequate to their capabilities.

The adequacy of students' attitude to themselves was determined in the present study by establishing the ratio of the complexity of the problems selected for solving schoolchildren to their competent overcoming. The influence of situational factors has significantly decreased. There was a convergence of emotional and intellectual components. All this in aggregate contributed to a decrease in the "degree" of self-criticism, anxiety, and overcoming the lack of control among students. Thus, the achievement

of the social status "Student of the profile Agroclass" led to an increase in agroprofile education efficiency.

The system of lifelong agricultural education imposes requirements on its constituent components (agro-profiled schools, agricultural colleges (technical schools), universities, and CPE organisations) to recognise the implementation of ideas and principles of a personality-oriented approach as a priority. The realisation of the dominance of each person's educational values in the educational process determines the transformation of the system of continuous agricultural education into a variable sphere open to operational change and innovations. One of the effective ways to improve the quality of the educational process in agricultural educational institutions is to change the regulatory and pedagogical support, consisting of administrative, pedagogical, and methodological documentation (*SanEpid 2.4.2.2821-10*).

For the implementation of our research, the direction of normative and pedagogical support associated with improving the educational process's organisation was necessary. This is because having entered the agricultural college after completing the agroprofile education in a general education school, students, upon reaching the new social status "Student of the agricultural college", face a different training system and a diverse educational regime. The organisation of the optimal work schedule for students during the day, week, and other periods of the academic year are provided with the plan of training sessions, drawn up based on sanitary and epidemiological rules [15]. When drawing up the schedule, it is necessary to consider the dynamics of students' performance and the degree of difficulty mastering the educational material (*SanEpid 2.4.2.2821-10*).

Compliance with the prescriptions of this necessary educational document (class schedule) guarantees the continuity of the educational process throughout the day, even the student workload distribution (classroom independent and practical) during the week and the possibility of their rational alternation. Along with this, in clause 2.6.1.3. Sanitary and Epidemiological Rules 2.4.3.1186-03 determines the change duration, which must be at least 10 minutes.

The most significant difficulty for freshmen of agrarian colleges (technical schools) (recent graduates of a comprehensive school) is caused by double lessons ("pairs"). It is known that the daily dynamics of students' working capacity is in direct relation not only to the number of tasks but also to their duration. Therefore, in the regulatory requirements that determine the parameters of school hygiene, it is recommended not only to schedule lessons on similar subjects but also to load the same parts of the central nervous system, one after the other, and indicate the inexpediency of doubling lessons in one subject. In a general education school, double studies are allowed only for work in physical education, during laboratory and control work (*SanEpid 2.4.3.1186-03*).

Besides, first-year students have to put in a lot of effort to adapt to the interaction with a new team of students and teachers (*Sagitova & Sagitov 2017*). All this significantly increases the indicators of value according to the scales

"Disadaptation" and "Emotional discomfort" in freshmen of agricultural colleges (technical schools) (Kuznetsova 2010) and harms the achievement of a new social status.

In this regard, in agricultural colleges (technical schools) that are part of the continuous rural education system, it was decided to abandon conducting double lessons in the first year during the first semester. It was necessary to increase the breaks between lectures to 15 minutes to overcome the emerging phenomenon of anterograde interference (the negative impact of subsequent information on preserving the previous one). In other words, it takes 15 minutes to transfer data from short-term memory to long-term memory. Any new information to be assimilated after a shorter than the specified period, due to the influence of interference, is not put into the arsenal of students' long-term memory and is soon lost by them (Velichkovsky 2006; Marey et al., 2019). As shown by the results of the study, there is a linear correlation between the interference coefficients and academic performance (Spearman's r), in particular, in 87% of the students in the experimental group, academic achievements during the intermediate certification were significantly higher than the same indicator in the control group.

A severe problem for graduates of the agro-profile class, which negatively affects the motivation for the accelerated achievement of a new social status after their admission to an agricultural college, is the widespread opinion about the low quality of general education in secondary vocational educational organisations. If a farm college graduate decides to enter a rural university, he must pass the Unified State Examination (Unified State Exam) in Russian language and mathematics. An agricultural university's admission committee makes no difference in what the applicant graduated from a secondary school or an agricultural college. Only the USE result matters. Therefore, in the rural colleges included in continuous agricultural education, general education quality is monitored. The formation of generalised repetitive courses in mathematics and the Russian language is carried out using modular competence technology (Gamayunova 2008). This approach has a positive effect on the achievement of "Agrarian College Students". It forms students in secondary vocational educational organisations of the agrarian profile confidence in the possibility of further improving agricultural knowledge, skills and competencies.

Graduates of agricultural colleges (technical schools) after entering an agrarian university to achieve a new social status also experience several difficulties – first, adaptation to the new requirements associated with training in a higher educational institution. The transition of higher professional educational institutions to work according to the latest federal-state academic standards (FSSES), which are based on the competence-based approach, determines a specific set of practice-oriented goals and tasks that students must complete for the successful development of general cultural and professional competencies. Therefore, the competence-based approach in higher education, according to author (Krulecht M.V.) must have a particular organisation of the educational process. I mean "... the

importance of psychological and pedagogical support for the formation of the subject position of students, which is a system-forming condition that ensures competence" (Krulecht 2009).

Secondly, the need for further development (improvement of ability), actualises the need for an individual approach. In other words, we are talking about the development of personality through the creative assimilation of culture. Its potential is revealed, and there is a mastery of a specific unique way of existence (Serikov 2012).

The involvement of students' resources in the educational process, on the one hand, complements its integrity. On the other, it increases the importance of pedagogical support at all stages of its design, planning, and implementation goals (Serikov 2012). According to author (Boltykov Yu.V), "personal resources are life and social experience, the formation of professional and socially significant personality traits, the level of personal competence, and professional expectations, professional orientation" (Boltykov 2019). From this position, graduates of agricultural colleges (technical schools) have great personal potential. At the stage of training in a secondary professional organisation, professional expectations and professional orientation were formed. Besides, they have significant life and social experience, etc. Therefore, the inclusion of such a critical resource fund of graduates of secondary vocational educational organisations in the university's educational practice will contribute to students' accelerated achievement of a higher agricultural educational organisation, the development of distinct social roles, and successful learning.

In the Decree of the Government of the Russian Federation of March 31, 2017, No. 376 "On Amendments to the State Program of the Russian Federation" Development of Education "for 2013 - 2020" (Decree of the Government of the Russian Federation), the goal is set: to form a flexible system of continuous professional education that develops human potential, accountable to a society meeting the current and future needs of the socio-economic development of the Russian Federation.

Additional vocational education (APE) is the final component of continuous agricultural education and contributes to a person's professional and social development, including his self-development. Due to the permanent changes taking place in professional and production activities, it is impossible to create federal state educational standards for APE institutions. These academic organisations must act in the context of current changes in the professional field and proactively. Despite the lack of standardised goals, all APE institutions are guided by historically established attitudes for students' socialisation. As a result, persons who have completed professional development courses, as a rule, use the system of social and professional lifting productively.

Another expected effect of additional agrarian education is an increase in agricultural specialists' mobility, allowing them to realise their potential, in particular, more effectively, to master new types of activities and spheres of work. In the conditions of the accelerated development of

agriculture, which is a characteristic feature of the XXI century, every worker in agricultural production must be ready for change and the emergence of nonstandard professional and personal situations. Therefore, rural institutions should pay great attention to students' personal growth and fulfil a trigger in their continuous development and self-improvement.

The digitalisation of agriculture has exacerbated the urgency of the problems of high-quality professional training of agricultural specialists in the system of additional agricultural education and increased the importance of achieving the status of students of another educational institution, since not only the success of the training depends on this, but also the consolidation of the stay different agrarian professional orientation of the individual in the context of a new technological order.

One of the obstacles in achieving the social status of a student of advanced training courses is the partially lost learning ability. Another block is the emerging interpersonal relationships both in the group and with the teaching staff.

During this study, the study of the psychological microclimate and interpersonal relations in the experimental group of listeners was carried out, which was carried out using the methodology for diagnosing the socio-psychological climate of the collective (Bordovskaya N.V., Rean A.A.). This technique allows you to determine the level of development and assess the psychological environment and identify factors focusing on adjusting the educational process.

According to the results of the study of microclimate and interpersonal relations in the experimental group of listeners, the assessment was:

- Emotional component - $E = 0.32$.
- Cognitive component - $E = 0.3$.
- Behavioral component - $E = 0.31$.

As can be seen from the analysis results, these indicators indicate a low socio-psychological climate in the experimental group. Anonymous questioning of the experimental group's listeners revealed the reasons for this phenomenon. The questionnaires' content analysis made it possible to single out four main factors that negatively affect the state of the socio-psychological atmosphere in the control group. Firstly, the teaching staff, which young specialists, broadcasting outdated information represented, caused great emotional tension among the listeners. The second negative factor was the insufficient volume of practical training. The third factor was a lack of attention to the expectations and interests of the listeners. In the opinion of the respondents, their needs should influence the content and the learning process. The fourth factor turned out to be an ill-considered approach to recruiting training groups. All students had different educational needs.

After the above negative factors were eliminated by organising round tables, using coaching techniques, as well as by making constructive changes in the educational process, the result of a repeated analysis of the socio-psychological climate was as follows:

- Emotional component - $E = 0.6$.
- Cognitive component - $E = 0.5$.
- Behavioral component - $E = 0.6$.

The elimination of the above negative factors through the organisation of pedagogical support (round tables, individual interviews, contextual training, business games, etc.) contributed not only to the improvement of the socio-psychological climate in the experimental group but also accelerating the achievement of the social status of the student of the APE institution by students. His achievements contributed to the successful development of the latest agricultural competencies and teamwork skills (Halpern 2009).

Conclusions

According to author (Epova N.P.), "the modernisation of the education system is impossible without the modernisation of pedagogical activity and the conditions for its development" (Epova 2016). The organisation of pedagogical support in the system of continuous agricultural education is constructively consistent with this conclusion. It makes it possible to train highly competent specialists for the farm sector's needs at a new qualitative level. By creating a creative and developing environment with the help of pedagogical support, which is a space for the development of subject-subject relations between teachers and students, agrarian educational organisations operating within the framework of the continuous agricultural education system productively solve the problem of student-centred learning, which effectively affects the improvement of the quality of agricultural education. The situation of success realised through the organisation of pedagogical support at all stages of continuous agricultural education motivated students to achieve new social statuses, which, in turn, contributed to developing their professional and personal abilities.

Activities for the design and implementation of pedagogical support (compatibility, generalising repetitive courses, disclosure of personal resources, etc.) in the daily practice of agricultural educational organisations that are part of the system of continuous agricultural education, led to an increase in the scientific and methodological culture of the teaching staff of these institutions and the effectiveness of the research work.

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