



ORIGINAL

The methodology of teaching psychological and pedagogical disciplines in agricultural higher education institutions

La metodología de enseñanza de las disciplinas psicológicas y pedagógicas en las instituciones de educación superior agrícola

Viktor Korolenko¹  , Karine Horbunova¹  

¹Mykolaiv National Agrarian University, Faculty of Engineering and Power Engineering, Department of Vocational Training Methodology, Mykolaiv, Ukraine.

Cite as: Korolenko V, Horbunova K. The methodology of teaching psychological and pedagogical disciplines in agricultural higher education institutions. Salud, Ciencia y Tecnología - Serie de Conferencias. 2024; 3:.1215. <https://doi.org/10.56294/sctconf2024.1215>


Submitted: 17-03-2024

Revised: 21-06-2024

Accepted: 30-09-2024

Published: 01-10-2024

Editor: Dr. William Castillo-González 

Corresponding author: Viktor Korolenko 

ABSTRACT

Introduction: the introduction of psychological and pedagogical disciplines contributes to integrating higher education into European standards, leading to the development of a competitive specialist in changing employer requirements. Agrarian education slowly introduced psychological and pedagogical methods, which was the reason for the slow reformation of educational approaches in the field and did not contribute to the growth of the profession's prestige.

Objective: the study aimed to determine the methodology of psychological and pedagogical disciplines based on the analysis of structural subdivisions, teaching staff and features of the pedagogical and psychological profile disciplines in agrarian universities.

Method: the method of synthesis, analysis, survey, grouping, comparison, visualisation and generalisation of results is applied.

Results: the study results established that there are departments of psychology and pedagogy and professional teaching staff in the studied universities. The presence of compulsory and optional subjects, which differ in different institutions, was determined, which is explained by the autonomy of institutions in determining the form of teaching subjects by individual requests.

Conclusions: at the same time, autonomy does not involve monitoring the effectiveness of educational activities, which was confirmed by the results of a survey of students and teachers, which revealed the popularity of outdated educational methods among teachers and low motivation among students in methods that develop creativity and the practical application of acquired knowledge. Instead, some pedagogical practices have found wide application and have shown effectiveness in developing communication skills, teamwork, and organisation.

Keywords: Agrarian Universities; Agricultural Education; Psychology; Pedagogy; Student-Oriented Approach; Competence Approach; Self-Education.

RESUMEN

Introducción: la introducción de disciplinas psicológicas y pedagógicas contribuye a la integración de la enseñanza superior en las normas europeas, lo que conduce al desarrollo de un especialista competitivo ante las cambiantes exigencias de los empleadores. La educación agraria introdujo lentamente métodos psicológicos y pedagógicos, lo que fue la causa de la lenta reforma de los planteamientos educativos en este campo y no contribuyó al crecimiento del prestigio de la profesión.

Objetivo: el estudio tuvo como objetivo determinar la metodología de las disciplinas psicológicas y

pedagógicas a partir del análisis de las subdivisiones estructurales, el personal docente y las características de las disciplinas de perfil pedagógico y psicológico en las universidades agrarias.

Método: se aplica el método de síntesis, análisis, encuesta, agrupación, comparación, visualización y generalización de resultados.

Resultados: los resultados del estudio establecen que existen departamentos de psicología y pedagogía y profesorado profesional en las universidades estudiadas. Se determinó la presencia de asignaturas obligatorias y optativas, que difieren en las distintas instituciones, lo que se explica por la autonomía de las instituciones para determinar la forma de enseñanza de las asignaturas por solicitudes individuales.

Conclusiones: al mismo tiempo, la autonomía no implica el control de la eficacia de las actividades educativas, lo que fue confirmado por los resultados de una encuesta realizada a estudiantes y profesores, que reveló la popularidad de métodos educativos anticuados entre los profesores y la escasa motivación de los estudiantes en métodos que desarrollan la creatividad y la aplicación práctica de los conocimientos adquiridos. En cambio, algunas prácticas pedagógicas han encontrado una amplia aplicación y han demostrado su eficacia en el desarrollo de las habilidades comunicativas, el trabajo en equipo y la organización.

Palabras clave: Universidades Agrarias; Educación Agraria; Psicología; Pedagogía; Enfoque Orientado al Estudiante; Enfoque por Competencias; Autoeducación.

INTRODUCTION

The agricultural sector is an essential component of the economy, which is responsible for providing the population with food and accounts for almost 20 % of the GDP of Ukraine, taking the first place among other industries, so training professionals in this industry is critical.⁽¹⁾ The rapid development of technologies and the globalisation of the market have significantly changed the requirements for the professional skills of agricultural workers. Outdated conservative teaching methods have demonstrated their low effectiveness not only in agricultural education but also in other areas, which stimulated the educational sector to reform through the creation of scientific programs with priority development of professional competencies that would meet the demands of the modern labour market.⁽²⁾ In the education reform paradigm, in parallel with speciality knowledge, significant attention was paid to psychological and pedagogical education as a critical factor in the formation of motivation, flexibility and communication skills that increase the competitiveness of future specialists.

Even though Ukrainian higher education institutions with an agrarian profile have switched to the Bologna process, outdated conservative teaching methods in universities remain a priority. Pedagogical methods are implemented mainly in the form of theoretical principles due to increased hours of teaching the disciplines of psychology and pedagogy. However, in practice, the teaching methodology remains unchanged. Despite introducing the latest technologies, the presentation format of educational material remains convenient for the teacher. The function of the student remains as a listener, and dialogue and discussion during lectures are mostly absent. Thus, despite the increase in teaching hours of psychological and pedagogical disciplines, the teaching methodology in agricultural universities still needs to be updated, which is the reason for the insufficient qualification of graduates and their unemployment in the chosen profession.

Literature review

At a time of rapid technological development, high-quality education of agricultural specialists contributes to the development of the agricultural sector of the economy, ensuring the profitability of the food business. Therefore, the issue of improving the educational process of agricultural higher educational institutions is relevant among scientists. Melchior and Newig⁽³⁾ analysed scientific works related to agricultural education. They determined that the standard agricultural policy of the European Union includes the promotion of educational institutions for the exchange of knowledge and training, as well as the joint development of educational programs in the field of agriculture. Joffre et al.⁽⁴⁾ emphasise the need for a continuous process of training professionals in the agricultural sector, including continuous professional development of university teachers and developing courses for farmers. Massicotte and Kelly-Bisson⁽⁵⁾ demonstrate the importance of “learning competence” as acquiring new knowledge, especially in learning the basics of technological innovation. Yuldashev et al.⁽²⁾ analysed the development of educational programs necessary to achieve a competitive advantage in the digital world. Training in this paradigm is not a subjective decision but a demand for introducing new technologies when the primary need is training skilled workers in digital technologies. After all, the digitalisation of the activities of agro-industrial enterprises, which consists of the implementation of a complex of high-tech solutions in the direction of automation of management, is a necessary component of the booming economic activity of this industry, thanks to the reduction of production costs and the rational use of natural resources.⁽⁶⁾

The authors' attention is focused on the practical part of specialist training since agriculture requires

training on practical examples, including internships. Moschitz et al.⁽⁷⁾ investigated the role of local farmers' knowledge integration in agricultural modernisation, combining practical skills and observations with theoretical knowledge. Levkoe and Offeh-Gyimah⁽⁸⁾ described the problems of internships on ecological farms as a means of practical learning, identifying the inequity of access to internships among different strata of students due to the lack of payment for internships, which created the basis for the emergence of social and racial discrimination. Gerasymova et al.⁽⁹⁾ determine the role of mobility among employees and future specialists in the agricultural sector, which contributes to the employment of young specialists and expands the possibilities of introducing innovations into practice.

An essential aspect of the training of qualified agricultural entrepreneurs is ecology training. Ashraf et al.⁽¹⁰⁾ investigated the need to expand knowledge about climate and possible threats to ecology since agricultural production depends entirely on the climatic features of the farming areas. The authors emphasise cooperation between the farmer education system and the meteorological system to predict dangerous climate fluctuations and find ways to mitigate the effects of climate change on agricultural systems. Unay-Gailhard and Bojnec⁽¹¹⁾ studied gender differences in the behaviour of implementing agroecological and climate measures, the employment status of young female farmers and the role of women and men in family farming activities.

The revolutionary challenge for changes in the educational process was the period of the COVID-19 pandemic, when, despite the difficulties of the distance format, rapid and creative changes in approaches to education took place. Muthuprasad et al.⁽¹²⁾ described the total transition to an exclusively online learning format during the lockdown as a large-scale social experiment, including in the agricultural education sector, whose curriculum is focused on practical classes, demonstrating the dynamic changes of the reform educational processes, their adaptation to the online platform, development of self-education.

Coleman et al.⁽¹³⁾ explored the shortage of qualified teachers in the agricultural sector and the importance of alternatively certified teachers in addressing the teacher shortage. The increase in the number of teachers with practically no pedagogical practice justified the conduct of quality continuous professional development courses, particularly those that develop classroom management skills, curriculum development, student motivation, and management of educational institutions.⁽¹⁴⁾

Tytova et al.⁽¹⁵⁾ investigated the role of psychological and pedagogical disciplines in training future vocational and technical educational institutions teachers by international requirements within the framework of integrating higher education in Ukraine into the European educational space. The development of psychological and pedagogical disciplines directs the educational process along the path of innovation, humanisation, scientificity and practicality, which contributes to students' motivation and increases the efficiency of assimilation of educational material. Černak and Beljanski⁽¹⁶⁾ describe the growing importance of psychology and pedagogy in master's education programs at various universities. In this way, an interdisciplinary teaching approach is used, which, thanks to psychology, contributes to understanding the development of intelligence, learning ability, motivation and individual differences between students. At the same time, thanks to pedagogical practices, influential theories and forms of learning, assessment and overcoming the barriers of individual differences in classes are formed. Okolie et al.⁽¹⁷⁾ described the importance of pedagogical training for PhD candidates. Tytova et al.⁽¹⁵⁾ identified the low level of development of pedagogical science, the conservatism of educational activities and educational programs, and the need for practical orientation as the reasons for the backwardness of psychological and pedagogical training of students.

Despite the important role of psychology and pedagogy in the structure of higher education, the analysis of the literature related to agricultural education showed an insufficient amount of data on the development of psychological and pedagogical disciplines in agricultural universities, their impact on the educational process, the formation of professional competences and the employment of future specialists.

The aim of the study was to analyse the methodology of teaching psychological and pedagogical disciplines and the effectiveness of implementing world pedagogical practices in the educational process of agrarian universities.

METHOD

The article presents an original research that contains the analysis of the structure of agricultural higher educational institutions of Ukraine from the point of view of the presence of departments of psychology and pedagogy and teaching staff with a scientific degree in the field of psychology and pedagogy, as well as the educational process with the determination of the presence of obligatory and optional disciplines of a psychological and pedagogical profile. Universities were chosen randomly. We analysed curricula and structural units of universities based on open information from the official websites of higher education institutions. For clarity and comparison, a graph (figure 1) was created on which the number of psychology-pedagogical disciplines and teachers of this profile in three regional universities of Ukraine was indicated. An anonymous survey was conducted among 95 students and 42 teachers of agricultural universities on Google platforms to determine effective methods of organising educational processes. Before conducting the survey, the respondents were informed about the further use of their answers. All respondents participated in the survey voluntarily

and with their own consent. Consent was also obtained for the possibility of using the answers in our study and permission to publish the results. Based on the analysis of the survey, after the grouping, for the visualisation of the obtained data, a figure 2 was created with the definition of effective pedagogical methods among students and teachers. The issue was choosing an effective teaching method, which included the following options: classic lectures, lectures for small groups, presentations, guidelines, work in groups, self-education, video lessons, discussion, dialogue, online learning, course projects, creative tasks, internships, tests, an exam in the form of extended answers. Responses included following answers: “Yes”, “No” and “Hard to answer”, the answer “yes” was considered positive. The figure 2 shows and groups the positive answers that included the selected effective methods in the opinion of students and teachers, found in more than 50 % of the respondents. Three groups were selected for visualization: students, teachers and a combined group of students and teachers. The combined group was selected for visualization of those pedagogical methods that were positively evaluated by both students and teachers. Methods of analysis, synthesis, survey, generalisation of results, visualisation and comparison of results were applied.

RESULTS

The implementation of psychological and pedagogical disciplines in agricultural universities began after the standardisation of requirements for educational institutions, which began with the introduction of the Bologna process in 2005. Until then, most agricultural higher education institutions did not focus on improving teachers’ pedagogical skills. Thus, the education system was oriented to a conservative type of teaching, which was teacher-centric; that is, the teacher worked according to the curriculum and to the standards of lectures for a large, diverse audience, which could include students from different faculties. Practical classes concerned laboratory or experimental methods and testing knowledge on the lecture topic. Evaluation was carried out according to the system of exams, which did not exclude the subjective side of evaluation by teachers. These exams were stressful primarily for students. Practical skills were acquired in industrial practice, which was mainly formal. Enthusiasm and creativity among students were not valued or encouraged, and pedagogical creativity among teachers was limited.

This type of education needs to be updated and more effective, as evidenced by the low prestige of agricultural institutions among entrants and the low employability of students of agricultural universities by speciality, especially among the urban population. This became why agricultural universities increased the profile of universal professions, such as managers and economists. However, the significant agriculture resource in Ukraine requires a large number of professionals who have knowledge of innovative technologies and can implement them in the agricultural sphere, increasing the profitability of agriculture, which stimulated agricultural education to reform.

Thanks to integrating education into European standards, significant attention began to be paid to psychological and pedagogical disciplines. Departments of pedagogy and psychology began to be created in the structure of agrarian universities, and the number of psychological and pedagogical disciplines and teachers with specialised pedagogical education increased. The structure of the psychological and pedagogical direction of some agricultural universities is shown in figure 1.

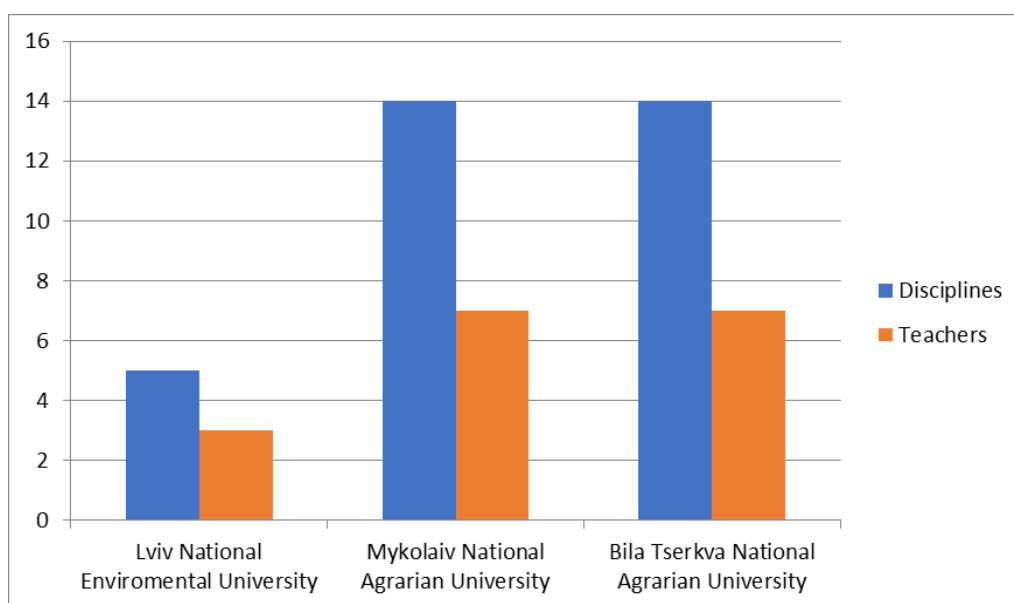


Figure 1. Teaching staff and educational disciplines of the psychological and pedagogical profile of agrarian universities of Ukraine

At Mykolaiv National Agrarian University, a department of professional training methods was founded, which has seven teachers with professional pedagogical education and academic degrees in pedagogical sciences. The department has developed 14 psychological-pedagogical disciplines, including psychology, engineering psychology, methods of educational work, methods of pedagogical research, methods of professional training, pedagogical skills, psychology of management, pedagogy, social pedagogy, psychology of work, technical teaching aids, theory and methods of higher education, management of educational programs and projects, ethics and aesthetics.

Lviv National Environmental University creates five psychological and pedagogical disciplines. Three teachers with pedagogical and psychological education work at the Department of Humanitarian Education. Higher school pedagogy is an obligatory discipline for master's students, and higher school pedagogy and pedagogical practice are obligatory subjects for PhD students. Three elective subjects, psychology, ethics and aesthetics, rhetoric, and modern communication, are also available for bachelor's students.

The structure of Bila Tserkva National Agrarian University includes the Department of Psychology and Human Health and the Department of Slavic Philology, pedagogy and Teaching Methods. Among the disciplines, there are teaching methods in higher education, pedagogy and teaching methods of legal disciplines, psychological and pedagogical studies, rhetoric, business communications, social psychology, general psychology with a practicum, developmental psychology, personality psychology, family psychology, political psychology, economic psychology, sports psychology, professional and corporate ethics.

As can be seen from the diagram in Figure 1 modern methods of teaching psychological-pedagogical disciplines differ in different universities. Namely, in Mykolaiv and Bila Tserkva National Agrarian Universities, there were 7 teachers with a psychological and pedagogical background in the state, and there were 3 teachers with psycho-pedagogical education in Lviv National Environment University, moreover, in the curricula of Mykolaiv and Bila Tserkva universities there were 14 psychological and pedagogical disciplines, while in Lviv University there were 5 disciplines. This observation indicates the absence of a standardised approach to the requirements for the psychological-pedagogical methodology of agricultural universities. In addition, both mandatory and optional psychological and pedagogical disciplines differ in different universities, which indicates the advantages of higher education autonomy, which allows for individualization of the educational process according to the needs of students and teachers. Common to the above-mentioned universities is the mandatory pedagogical training for masters and doctoral students who plan to be university teachers, which is a positive factor for improving the quality of the educational process in the future. At the same time, the presence of such structural subdivisions of the pedagogical direction contributes to the continuous development of teachers of agricultural universities and increases the quality of education of specialists in the agricultural profile.

The development of psychological and pedagogical disciplines contributed to the reform of the education system with the development of communication skills, flexibility, the ability to learn continuously, teamwork, personnel management, stress resistance, and the ability to make independent decisions. Pedagogical practices successfully apply information technologies in the educational process. For example, traditional lectures are accompanied by a visual demonstration of materials in video materials, presentations, images and diagrams.

The teaching methodology, which is based on psychological and pedagogical principles, is student-oriented, humanistic, and motivational, with the formation of competitive competencies in specialists and promoting the adaptation of specialists in the profession. According to the results of an anonymous survey of 95 students and 42 teachers of agricultural universities in the Google form, the following teaching methods were found, which were considered the most effective in the student, teacher and both (student-teacher) groups (figure 2).

Teacher	Both student and teacher	Student
<ul style="list-style-type: none"> •classical lectures •course projects •creative tasks •exam in the form of expanded answers •internship 	<ul style="list-style-type: none"> •discussion •work in groups •presentations •tests •self-education 	<ul style="list-style-type: none"> •dialogue •online learning •video lessons •guidelines •lectures •for small groups

Figure 2. Results of the survey of students and teachers of agricultural universities

According to the survey, teachers consider lectures practical, while students prefer self-study and (guidelines) structured methodical materials and video lessons. Students also prefer online classes, which is justified by

saving time when getting to the university. Indeed, online learning promotes self-organisation, and video lessons allow repeating an unclear part of the lesson. Such a choice of students shows the low communicative competence of students and problems in building relationships between the teacher and the student. Bad relationships between the student and the teacher explain the student's fear of asking questions in front of a large audience. The fear of taking the initiative in lectures determines the low level of dialogue in lectures with a large number of listeners, which confirms the ineffectiveness of such a teaching method. With the low communicative ability of students, especially in elementary courses, after lectures, the student receives more questions than answers, which usually stimulates them to self-education. However, the question arises as to the feasibility of such lectures.

Students prefer lectures in small groups in the format of question-answer and dialogue. Still, this format has yet to find positive feedback among teachers, which is explained by the increase in teachers' workload and the involvement of a small number of active students. In contrast, the majority of students remain listeners. Both students and teachers note the effectiveness of working in groups during practical classes, which improves teamwork skills and communication in student-student and student-teacher relationships. The communication format, which was a discussion and presentation of thematic material with the help of visual programs, was also positively evaluated by both students and teachers.

Both students and teachers approved of tests as an assessment method. The open-ended exam format was popular among teachers, who explained their choice as a better opportunity to assess students' complete understanding of the topic and the absence of random positive results when testing. The coursework format was positively perceived by teachers and negatively by students, as it requires long-term student work and creativity.

The teachers emphasised the necessity of practice in the form of internships, which consolidate theoretical knowledge, form a student's understanding of the integrity of processes in agriculture, and allow for determining the direction of activity and future employment. At the same time, students did not willingly choose internships in their answers, which can be explained by low motivation and reluctance to work in agriculture after graduating from university. On the other hand, many students come from farmers' families, which explains their low interest in practice. However, for such students, it is helpful to get the experience of other entrepreneurs and share their observations.

As can be seen from the results of the survey, teachers prefer classical teaching methods such as lectures, course projects, internships, and assessment in the form of extended answers, which were not popular and effective among students. While students choose online learning, lectures for small groups, dialogues and guidelines, which have not received a positive evaluation among teachers, because they require long-term preparation of such materials by teachers. Among the methods that were positively evaluated both among students and among teachers were discussions, work on groups, presentations, tests and self-education, which indicates the achievement of a compromise between the views of the teacher and students. In our opinion, the achievement of this compromise indicates the improvement of relationships between students and teachers due to the introduction of psychological and pedagogical disciplines, and also has a positive trend for the further development of communication skills, teamwork and a student-oriented approach.

DISCUSSION

The method of teaching psychological and pedagogical disciplines is introduced into the educational process of agricultural universities, which is confirmed by the presence of departments, teachers and disciplines of psychological and pedagogical direction. As our research showed, the presence of psychological and pedagogical disciplines in the studied universities is mandatory, but the curriculums differed in the number and quality of these disciplines. This observation indicates the absence of standardized requirements for agricultural universities of psychological and pedagogical training and confirms the autonomy of universities. We consider autonomy in the studied universities to be a positive factor in the quality of education because autonomy reveals the creative potential of universities in the development of curricula, which increases the quality of education. ⁽²⁶⁾

However, the survey of students and teachers revealed problems with the effectiveness of their work. After all, the number of positive responses among teachers regarding giving preference to classical lectures, which need to be updated and more effective, shows that pedagogical approaches have no practical application at the initiative of teachers. This type of training reduces the load on the teacher, which is essential in the fight against burnout. Kryshchanovych et al. ⁽¹⁸⁾ describe the reduction of stress and workload on the teacher as one of the means of combating emotional burnout and fatigue, which lead to the loss of professional skills and abilities and reduced work capacity. Considering the risks of emotional burnout when drawing up the curriculum, it is worth paying attention to classical lectures changed into question-answer format, with visualisation of educational material and short methodical recommendations, which increase the assimilation of the material among students and reduce the load on teachers. Semenets-Orlova et al. ⁽¹⁹⁾ recommend creating a favourable

atmosphere in an educational institution by constantly monitoring employees' interpersonal relationships to reduce teacher stress.

On the one hand, students' desire for self-education through remote platforms and video materials promotes student self-organisation and the skill of continuous learning. However, it may indicate low communication skills and problems building trusting teacher-student relationships.⁽²⁰⁾ On the other hand, the teachers identified the problems of such training, namely the low responsibility of some students who do not know how to allocate their time and do not master the topics on time, which leads to a significant deterioration of the study results and may be the reason for expulsion from the university. Teachers complain about poor student feedback and low student activity.⁽²¹⁾ In addition, the agricultural curriculum emphasises practical aspects, and its adaptation to an online platform can only be partial.⁽¹²⁾ However, numerous studies have suggested no significant difference between online and face-to-face learning if distance online subject is adequately designed.⁽²²⁾ Joshi et al.⁽²³⁾ describe the utility of online learning, including work-home balance and virtual classroom capability for working professional practitioners. Sun et al.⁽²⁴⁾ describe the role of the psychological atmosphere between the student and the teacher in practical online classes.

The low evaluation among students of such techniques as creating course projects and exams in the form of extended answers, which require creativity and demonstration of in-depth knowledge of the speciality, indicates a need for more motivation among students to integrate into the profession at the stage of education. Semenets-Orlova et al.⁽¹⁹⁾ determine the demand among employers for managers with a high level of professionalism, innovative, creative thinking and the capability of making decisions in extreme situations. Since the competence of creativity is one of the main ones at the time of globalisation, changing market requirements, high competition and the development of new technologies, it is essential to encourage students to participate in this type of educational activity by improving the relationship between the teacher and the student, when the teacher helps in creating a project and gives advice. It is worth involving the method of developing projects in groups, which will improve creativity and teamwork, will be less stressful and will promote the skill of quick decision-making and finding a compromise.

Low interest in industrial practice among students indicates low motivation to study and a desire to work in the profession. Internship promotes professional mobility, which is essential in the agricultural sector and reduces the possibility of self-realisation of specialists. As a result, almost half of the graduates are still looking for employment in their field every year.⁽⁹⁾ Another aspect is the low salary of the internship, which reduces the prestige of the profession and significantly reduces the motivation for training and further employment. Motivation influences career choices through utility values and understanding one's potential for success.⁽²⁵⁾ Paid internships encourage students to choose a profession in the future and, in addition to practical knowledge in agriculture, teach leadership qualities and expand knowledge about employment in the food industry.⁽¹³⁾

It is positive that both students and teachers identified discussion, group work, tests, and presentations as effective methods that confirm the effectiveness of pedagogical and psychological disciplines and their practical application in agricultural universities. After all, these methods develop communication skills, teamwork, organisation, and application of the latest technologies. This fact confirms the conclusions of other researchers that psychology and pedagogy help in achieving the skills of the twenty-first century by moving away from inflexible teaching methods.⁽²⁷⁾

CONCLUSION

The role of psychological and pedagogical disciplines in forming high-quality agricultural higher education consists of creating a student-oriented, humanistic and competent approach to education. Thanks to the development of pedagogical units in the structure of agricultural universities, the prestige of the profession increases, the demand for obtaining an agricultural speciality increases, and there is an opportunity for the continuous development of teachers. However, after analysing the results of surveys of students and teachers, gaps were found in the implementation of pedagogical methods in the practice of teaching in agricultural universities, in particular, the spread of outdated lectures for a diverse large audience of listeners, low motivation of students for practical internships and course creative works. Despite the shortcomings and slow implementation of psychological and pedagogical disciplines, teachers and students have approved some methods that promote communication skills, teamwork, and decision-making skills, indicating their effectiveness and wide application in the educational process.

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FINANCING

The authors did not receive financing for the development of this research.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Viktor Korolenko, Karine Horbunova.

Data curation: Viktor Korolenko.

Formal analysis: Viktor Korolenko, Karine Horbunova.

Research: Viktor Korolenko, Karine Horbunova.

Methodology: Viktor Korolenko, Karine Horbunova.

Project management: Karine Horbunova.

Resources: Viktor Korolenko, Karine Horbunova.

Software: Viktor Korolenko.

Supervision: Karine Horbunova.

Validation: Viktor Korolenko.

Display: Karine Horbunova.

Drafting - original draft: Viktor Korolenko, Karine Horbunova.

Writing - proofreading and editing: Viktor Korolenko, Karine Horbunova.