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Theoretical and Methodological Bases of Future Agrarians' Vocational Personality Self-Development

Collective monograph

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The collective monograph deals with the system and methods of forming future agrarians' readiness for vocational personality self-development. The role of a pedagogue of the higher education institution has been determined in the context of modern educational trends. Scientific views on the concept of future agrarians' vocational personality self-development have been analysed. The model of forming future agrarians' readiness for vocational personality self-development has been developed. The methodology of forming future agrarians' readiness for vocational personality self-development using the potential of modern information environments has been designed. The authors' model and methodology of forming future agrarians' readiness for vocational personality self-development have been experimentally verified.

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PREFACE

Only countries, in which intellectual professions have become prevalent and investment in human development is a priority, have perspectives for further successful development.

The Ukrainian nation has always been recognised as one of the most educated in the world. However, the employment problems of graduates of higher agrarian education institutions, imperfect system of financing agrarian universities, lack of a sound and consistent system of the higher education reform have a negative impact on the quality of training future specialists for the agro-industrial complex. Modern education is developing in the conditions of rapid informatisation, globalisation and integration of society, which radically change the labour market and the requirements for training in higher education. At global and national levels economic and social problems are exacerbated by a number of factors which can be resolved at a university level by updating the content of education, the introduction of innovative teaching forms and technologies. The main vector of educational reforms should be a change in the priorities of the agrarian higher school's pedagogy that should be aimed at preparing a person to conduct creative vocational activity, active life position, development of personal qualities.

Nowadays the format of the educational process does not contribute to the comprehensive development of a future agrarian's personality. The traditional orientation of didactic tasks on the system of scientific knowledge, skills and abilities is outdated. In modern changing world, the training of future agrarians for self-educational activities is becoming vital. It is no coincidence that the conceptual basis of higher education in most countries of the world has become the competence paradigm.

Satisfying the public demand for training of competitive professionals in higher education requires specific conditions for free development of the personality of an agrarian university's teacher and future graduate, formation of thinking and general culture, communication skills by engaging in various independent creative activities.

In many countries the role and functioning of agrarian universities are changing, the expectations of a higher education teacher are being altered too. A future agrarian's effective vocational personality self-development is a long process that includes training, practice and it needs support. Today the student audience has changed, so high school teachers have to work with more multicultural categories of entrants; development of inclusive education requires to pay more attention to students with special needs; a perfect command of information-communication technologies and innovative teaching methods. All this requires constant vocational and personality development of both a future specialist and a teacher. The higher education system requires active self-educational activity from teachers not only for improving their professional level, but also for motivating and involving future agrarians in vocational personality self-development; therefore, as a component of a teacher's vocational competence becomes perfect command of vocational personality self-development technologies. Thus, the monograph offers technologies which can be used both by teachers and introduced into the educational process for agrarian universities' students. In any case, students' interest grows, when the teacher reveals own experience and the path to success.

Vocational personality self-development is a special form of human activity that forms skills, knowledge and experience, other personality characteristics of a competent specialist. It can be provided in many ways, from formal to informal. It can be given, for example, through external experience in the form of courses, seminars or various programmes, through cooperation between students and the teachers. In the latter case, vocational personality self-development can be ensured through coaching / mentoring, joint planning and training, sharing experiences during the communication process, etc.

The conducted research is aimed at answering the following questions: How is a higher education teacher's activity changing in modern society? What are the ways of forming future agrarians' readiness for vocational personality self-development?

Vocational personality self-development enables the specialist to update knowledge constantly in the light of the latest achievements in the agricultural sector; improve skills, attitudes and approaches to the innovative agricultural technologies; change goals dynamically and adequately, adapt to new circumstances of vocational activity and accept innovative researches in the agricultural sector; develop and apply new strategies related to education and self-education, acquisition of practical training; be an active participant in sharing information and experiences between teachers, scientists, businessmen and others; help colleagues become more efficient.

The purpose of the work is to develop the system and methods of forming future agrarians' readiness for vocational personality self-development.

The realisation of the defined purpose has necessitated the solution of the following tasks:

1. Define the role of a higher education institution pedagogue in the context of modern educational trends.
2. Analyse scientific viewpoints on the concept of future agrarians' vocational personality self-development.
3. Create the model of forming future agrarians' readiness for vocational personality self-development.
4. Develop methods of forming future agrarians' readiness for vocational personality self-development using the potential of modern information environments.
5. Experimentally verify the authors' model and methods of forming future agrarians' readiness for vocational personality self-development.

The research object is future agrarians' vocational personality self-development in the conditions of information society.

The research subject is future agrarians' readiness for vocational personality self-development.

Research materials and methods. The following methods were used in the research: analysis of scientific, educational-methodical literature, normative legal acts, educational-methodical documentation to ascertain the state and approaches to personality self-development of a student; comparison, generalisation, systematisation of theoretical positions in order to reveal the essence of the conceptual-categorical apparatus of the research of personality self-development; graphic and tabular methods for visual generalisation of the material; abstract-logical method – while formulating research conclusions.

The scientific novelty of the research reveals itself in considering future agrarians' vocational personality self-development in the context of the necessary component of the training; the concept of "vocational personality self-development" has been specified; its structural components have been disclosed; the model of future agrarians' vocational personality self-development has been developed; pedagogical conditions of realisation of the offered model have been defined; diagnostic tools for assessing future agrarians' readiness for vocational personality self-development have been proposed.

The practical significance of the research is to develop a methodology for forming future agrarians' readiness for vocational personality self-development on the basis of modern information environments. The peculiarity of the methodology of forming future agrarians' readiness for vocational personality self-development is the widespread use of the potential of modern information environments, the use of analytical activities to encourage vocational personality self-development, project activities, psychological training and the case technology. The structure of the electronic portfolio as a tool that organises and controls a student's vocational personality self-development has been developed. The obtained results can be used in the educational process of agrarian higher education institutions by students and teachers-practitioners to create individual trajectories of vocational personality self-development.

Education is an endless process. It doesn't stop after students' graduating and starting careers. Owing to life-long education, career-minded people can continually improve their skills and become more experienced in their work. In the field of education it is particularly significant to have the university administration that encourages teachers to vocational personality self-development not only to ensure the best learning outcomes for students, but also for effective scientific and maintaining the image of a XXI century university.

The content of the monograph reflects current trends in the educational paradigm of modernity, defines the modern roles of a pedagogue, reveals the essence of the paradigm of future agrarians' vocational personality self-development in the information society, presents a definitive analysis of vocational personality self-development, the model of the system of forming future agrarians' readiness for vocational personality self-development has been developed, the methods of forming future agrarians' readiness for vocational personality self-development, which can be applied both in educational process for students, and higher education teachers, have been offered. The monograph consists of five chapters, conclusions for each chapter, general conclusions, references, appendices.

The first chapter "Current Trends in the Educational Paradigm of Modernity" deals with the essence of online education and forms of learning based on information technologies.

The second chapter "The Role of a Pedagogue in Forming Future Agrarians' Readiness for Vocational Personality Self-Development" covers the transformation of a modern teacher's functions, the content of the vocational profile, the paradigm of vocational development and growth of a pedagogue.

The third chapter "The Phenomenon of Future Agrarians' Vocational Personality Self-Development" presents a definitive analysis of the concept, focusing on the essential characteristics of future agrarians' vocational personality self-development.

In the fourth chapter “Modelling of Future Agrarians’ Vocational Personality Self-Development” theoretical bases for creation of the system of future agrarians’ vocational personality self-development have been considered, the authors’ model of the system of forming future agrarians’ readiness for vocational personality self-development has been substantiated and described.

The fifth chapter “Experimental Verification of the System of Forming Future Agrarians’ Readiness for Vocational Personality Self-Development” is devoted to organisation and methods of the pedagogical experiment, analysis and generalisation of the results of the determinative and formative stages of the pedagogical experiment.

The monograph contains research materials aimed at improving the professional training of teachers and future agrarians in accordance with the State National Programme “Education” (Ukraine of the XXI century) (1993), Laws of Ukraine “On Higher Education” (2017), “The National Programme of Informatisation” (1998) and considers the modern world concepts of vocational training in higher education.

CHAPTER 1
CURRENT TRENDS
IN THE EDUCATIONAL PARADIGM OF MODERNITY

Chapter 1 discusses the influence of global socio-economic processes on trends in education, highlights the opportunities of online education, application of modern gadgets, social networks, YouTube for educational purposes, expansion of worldviews, advancing the level of knowledge, personality self-development.

1.1 Online Education

The education system is one of the most significant social institutions, its development is completely determined by changing needs of the society, due to the nature and achievements of scientific, technological and social progress. The dynamics of modern social development is characterised by rapid and profound changes in all spheres of human life and activity – in science and technology, in economics and politics, in education and culture. The growing intellectualisation and dynamism of work, the spread of ideas of democratisation of public life and education, increasing the volume and role of information, the spread of information technologies make new demands on individuals, their mobility and competence. Unlimited opportunities of the global information space contribute to the rapid change of educational technologies. The organisation of education is changing; transition from traditional formal degrees to lifelong learning, from attending traditional formal institutes to attending educational institutions of different types and different statuses is taking place, a single educational space is being formed. Generalisation of scientific views of modern researchers on the processes happening in the educational paradigm (N. Alekseiev [2], M. Bratko [5], N. Voievutko [10],

O. Lovka [34] and other scientists-pedagogues) has enabled us to trace such general trends in the development of modern education as humanisation, internationalisation, globalization, informatisation, humanisation and continuity. Humanisation provides for a priority of education focused on the personality, based on the recognition of the rights and individuality of each person, the formation of a personal potential. Internationalisation focuses on high professional mobility, the ability to communicate with people of different nationalities, all professions and specialties; deep knowledge of the native language and fluency in a foreign language; knowledge of national and world history and culture. Informatisation of education, as noted by N. Hlynianiuk [13], is a part of informatisation of the society, a process that has taken the form of an information explosion or revolution since the middle of the XX century, giving grounds to characterise the modern society as an information one. This means that in all spheres of human activities the role of information processes is growing and the need for information and the tools for its production, processing, storage and use is increasing. Humanisation of education is intended to shape spirituality, the culture of personality, planetary thinking, a holistic picture of the world. The personality development depends on the level of assimilation of basic humanitarian culture in harmony with universal culture. Within the context of continuity education is positioned as a process that covers people's all life and educational practice, represents it as a purposeful assimilation of socio-cultural experience, which is not suspended with the use of all parts of the existing education system [26; 31; 33; 38; 43; 47]. Continuity of education is realised by creating new types of institutions for non-formal education: public schools (Germany, the Netherlands); social networks of self-regulated learning (the USA); information and training centres, public halls, women's education centres (Japan). The principles of the system of lifelong education are being realised – the system of basic ideas to be implemented in the process of designing a system of education institutions, which accompany a person in different periods of life.

It should be noted that such trends as ***increasing globalisation, rapid spread of information and communication technologies, promoting personal development, directing education to form skills of self-education and self-development*** have the greatest systemic influence on the development of education both in the world and in Ukraine.

N. Voievutko emphasises that the strengthening of the globalisation process caused by the development of science, technology, production [10; p. 26]. Particularly intensive development of information technologies leads to the formation of a single global economic space and the active exchange of material and spiritual activities, so the formation of favourable conditions for the development of an individual personality, his / her self-realisation in the world is provided by increasing availability of information through rapid development and spread of information technologies, an active dialogue of cultures. The active role of information technologies in education is explained by the fact that compared to traditional teaching tools computer-based learning tools provide new opportunities, as well as implement modern pedagogical teaching technologies at a higher level, stimulate the development of didactics and methods. Expansion of international cooperation, development of new technologies, constant updating of information, high social demands actualise the personal factor in education. All these shift the emphasis on self-educational activities. I. Ziaziun claims that social mobility, progress and prospects of the society and states depend on personality self-development [24; p. 89].

The interaction of these processes determines the specifics of modern education trends. In a broad sense the notion “trend” (general direction, tendency, style) means the direction of development in a particular social sphere (e. g., technology, clothing, finance, design), or a phenomenon, a product that sets the tone in a particular field. “Be on trend” means “keep up with the times” and “modifying or updating the behaviour or beliefs to reflect the latest developments in a particular field”.

So we shall consider the current trends which set the direction of the development of the modern educational paradigm.

It is an indisputable fact that in the conditions of informatisation of the society the top trend is ***online education***. Nowadays, in order to listen to the course of lectures at a top university, you may not take the entrance exams and you may even stay at home. This opportunity is provided by online education resources and platforms by hosting MOOCs (Massive Open Online Courses), which include video lectures and interactive assignments from current training and social courses authored by lectures of leading universities. Most top-ranked universities are in a hurry to take their place in the growing trend, presenting their programmes on online resources. The statistics are impressive: one of the most popular online education resources Coursera has already got more than 17 million registered users. Moreover, the popularity and convenience of online lectures affect the teaching methods at full-time departments of universities: thus, there is already a practice of "reverse learning": when students watch lectures online each at their own pace, and come to the university well prepared for the practical class. Advantages: students are not distracted from the lecture, they can plan their time themselves, and at the seminar the teacher can personally check the quality of learning, answer questions, give interesting additional materials and help develop the necessary practical skills in the subject. Such classes have already been introduced at Harvard, the University of Michigan and the University of California in the USA.

"Prometheus" is a Ukrainian public project of massive open online courses (MOOCs). In cooperation with lecturers of the best higher education institutions of Ukraine, the organisers create and place the MOOCs on their own online platform, provide free opportunities for universities, organisations and leading companies to publish and distribute courses on this platform, and open free online access to the best university courses for all in Ukraine. The MOOCs usually include video lectures created by teachers from leading Ukrainian universities, interactive tests

and assignments, discussions with other students and the teaching staff at the forum. In case of successful completion of all course assignments, it is possible to obtain a certificate of completion.

Today the process of e-learning is already an objective educational reality. ***Electronic learning (E-learning)*** is a learning system that offers the use of Internet technologies, electronic libraries, educational and methodical multimedia materials, virtual laboratories and workshops, etc. The undeniable advantages of e-learning are the freedom of access to e-courses via the Internet from anywhere where there is access to the global information network, flexibility of learning – the duration and sequence of learning materials students choose, fully adapting the learning process to their capabilities and needs, an opportunity to develop "up to date", as the users of electronic resources: both teachers and students develop their skills and knowledge in accordance with modern technologies and standards.

A teacher's highest degree of professionalism undoubtedly is the ability to design his / her own electronic courses, assignments, tests, movies, lectures etc. However, it is not always necessary for the teacher to develop the course and all e-learning materials thoroughly, but it is very important to be able to find, analyse and adapt the necessary sources from the existing ones. Thus, there is a shift from the teacher as the main source of information to the teacher-facilitator and supervisor. The main functions of the teacher in e-learning are the following: search, storage, dissemination, analysis and synthesis of information sources; notification of students in the format of e-mails or public announcements; keeping a calendar or journal that allows students to get acquainted with the timing of tasks and plan further activities; advising students: exchange of files, letters, messages; ensuring timely access of students to educational materials. Pedagogical roles in e-learning vary in the following range: tutor, facilitator, moderator or supervisor.

However, if E-learning is an objective reality, then the real trend of the future is ***Mobile Learning (M-learning)*** and ***Universal Learning (U-***

learning). Mobile devices, especially smartphones, are our constant companions. Statistics show that 83% of people always carry their mobile devices with them (October 2018, Facebook survey, today this figure has risen up to 91% [113]); people pick up their mobile devices from 150 to 200 times per day. As a result, there are nearly 30 billion cases of using mobile devices in the United States per day (Forrester). Since 2016 mobile devices are not only the most popular and widely used devices, but also begin to surpass all other devices in time spent online (Global Web Index).

The peculiarity of Mobile Learning (M-learning) is the transfer of knowledge to mobile devices using WAP and GPRS technologies, which enables making education available anywhere and at any convenient time. Mobile devices can be used for educational purposes as tools of access to the global network. They also provide access to specialised sites, which contain electronic training courses, tests, practical tasks and additional training materials (figures, photographs, audio and video files). A mobile phone is a tool for opening audio, text, video and graphic files containing educational information.

Another possible way to use mobile phones is to install a specialised programme for mobile platforms which can open and read files of such office programmes as Office Word, Power Point and Excel. Thus, having such files with educational information in the mobile phone's memory, you can view their versions, specially adapted for the screen phone, with convenient scroll bars, an appropriate fonts and a user-friendly interface.

Video and audio files can also serve as a source of information, media player software on mobile devices has been developed for each modern smartphone. This opportunity is especially valuable for people who want to learn foreign languages – there are a huge number of audio courses and audiobooks, including files of various formats and lengths. A mobile phone and its functionality make it possible to organise learning using adapted electronic textbooks, training courses and files of specialised types with educational information – tutorials are developed for certain mobile phone platforms.

One more way to learn is to use mobile applications. Students are encouraged to download Java applications which contain, for example, tests in chosen subjects, as well as information (electronic textbooks, a course of lectures) necessary for their successful completion. With the help of mobile applications you can easily learn, for example, foreign vocabulary, practice grammar rules.

Ubiquitous learning (U-learning) reveals the possibility of each individual to create the needed information environment at a particular time in a particular place on the basis of the principle "on demand". The main characteristics of U-learning are efficiency (access to the necessary resources is instantaneous regardless of the situation in the shortest possible time), the formation of students' lifelong learning habits: the ability to use various devices to acquire knowledge developing research skills of future professionals to improve vocational skills continuously. However, in the process of pervasive learning there are such difficulties as the need to create free Wi-Fi zones and some technical problems: limited battery life of the mobile device and continuous wireless charging (it should be noted that future technologies will overcome these obstacles very quickly), software development of a proper methodological support. Therefore, today the model of blended learning, which combines the mentioned technologies with classroom study of the traditional system, is the most common in the educational process.

Blended learning is a modern educational technology based on the concept of combining classroom and e-learning technologies. Blended learning is based on new didactic opportunities provided by ICT and modern teaching aids. The application of the principles of blended learning in pedagogical practice allows to:

✓expand educational opportunities by increasing the availability and flexibility of education, taking into consideration individual educational needs, as well as the pace and rhythm of studying the material;

✓stimulate the formation of a student's active position: increase motivation, independence, social activity, including students' knowledge

acquisition, reflection, self-analysis, and, as a consequence, increase the efficiency of the educational process as a whole;

✓transform the pedagogue's style: a move from the transmission of knowledge to interactive collaboration with students;

✓individualise and personalise the pedagogical process – students independently determine the educational goals, ways of achieving them, considering their educational needs, interests and abilities, and the pedagogue acts as a facilitator and a mentor.

Another modern educational trend, dictated by current requirements, is ***the use of social media resources for educational purposes and gamification in education***. Blogs, Wiki, podcasts, social networks and even YouTube − all these services can and should be used in education. This resource has a strong educational potential and is considered one of the most promising for education and human development in the 21st century, which deserves a special attention of scientists.

An increasingly popular learning trend is so-called informal learning. In April of 2021 the Ministry of Education and Science of Ukraine submitted for public discussion a draft order "On approval of the procedure for recognition of the educational outcomes obtained through non-formal and / or informal education in higher and vocational pre-university education", the main purpose of which is to acknowledge the educational results obtained through non-formal and informal education in the system of vocational pre-university and higher education for the realisation of their educational and professional rights.

However, some pedagogues deny the benefits of online education. Their main argument is the fact (and it deserves attention) that only a small percentage of students, taking online courses, complete them, they attend only a few lectures after registration. In our opinion, the reason is not only the quality of online courses, but also the low motivation to learn and the lack of skills for self-organisation and purposefulness. In other words, there is the absence of readiness for vocational personality self-development.

Attention should be paid to the economic aspect that has led to the emergence of new trends in higher education. After all, in Europe and the United States, whose universities are traditionally among the top best education institutions it has always been expensive for students to obtain a high quality education and their parents need to take loans. Despite the developed credit programmes (some of which are controlled by national governments), today the problem of student loans is very tough. Thus, the total debt of American students exceeds $ 1,3 trillion and, according to experts, this amount increases by $ 2,726 per second. It is happening together with ever-increasing costs of education. It should be noted that although student debts is not yet typical for Ukraine, a significant increase in the cost of education may provoke the same situation in the future.

Other educational problems which hinder the development of online learning include the lack of competent teachers, outdated teaching materials, lack of new and interesting teaching methods for students, which is typical not only for American and many world universities, but also for Ukrainian higher education institutions.

It was teachers and activists who began to solve these problems through the Internet. According to The New York Times, 2012 became "the year of the massive open online courses". Such sites as edX, Coursera and Udacity have opened up free access to new educational content (these platforms and their opportunities will be discussed in Chapter 4), through substantial financial support from leading universities and venture capital. This allowed everyone who has the Internet to listen to lectures of the best experts in different languages.

Popularity of online lectures from the world's leading universities has forced the pedagogical community to talk about the prospects of the already mentioned blended education, as courses of the best teachers become the basis for teaching at other universities and students' success in online education is transferred to diplomas. This approach combines the benefits of offline education and online education in academic education. According to experts, in this way it is possible to bring education to a

qualitatively new level – because only the best local teachers and universities will be able to compete with lecturers from the world's leading universities [96; 102; 104; 107; 109; 113].

One more advantage of online education compared to the classic form is the dynamics of changes in educational information. Nowadays, when science and technology are evolving more rapidly than ever, the question arises how rational it is to create new textbooks and workbooks – they are becoming obsolete every year. The same may apply to university courses transferred to the online format. At the same time, shorter courses or tutorials from practitioners can be updated much more often, which means that the information will stay relevant much longer.

1.2 Use of Social Media Resources for Educational Goals and Gamification in Education

Modern person needs not only interesting leisure time, but also, first of all, additional opportunities for intellectual development and doing business. Social networks, which have become an integral part of human activity, should be understood as a social structure formed by individuals or organisations united by certain interests or goals. The social network allows diversifying the connections between the participants through a new form of social relationships, whose purpose is the exchange of experience, knowledge, accumulated facts with the help of information technologies. There are currently more than 2,5 billion people using at least one of the social media platforms worldwide [113]. The ever-growing role of social media cannot be overstated in many areas of human life, especially in education.

A social network is a structure that consists of a group of objects (people or companies) and the connections between them. The term "social network" was first used by sociologist James Barnes in 1954. It refers to a social structure comprising a group of individual nodes, that is, social objects (people or organisations) and the connections between them.

More particularly, it is a group of people where one is the centre and all others are the branches. Such electronic social networks as Facebook, Vkontakte, Instagram, Google+ and Linkedin have significantly evolved since its inception until today. In 2004, one of the world's largest electronic social networks, Facebook (facebook.com), was created in the United States, and its founders are constantly expanding the network's functionality and adding new services. The network was initially called Thefacebook and was available only to Harvard students, and only since 2006 it has become a worldwide network. Finally, in July of 2014 the number of Facebook users increased to more than one billion users.

Mainly students and young people form the target audience of Facebook. The use of the network allows teachers and teachers to provide remote support for training courses, and educational institutions to create closed corporate communities for a specific target audience. There are also various pages and groups filled with a scientific content. Among them we can find "Postgraduates UA", "Young Scientists", "Informal Communication on Scientific Topics", "Education and Science", "Everything for Teachers", "Teacher Info", "Teacher-Innovator", "Department of Technologies of Open Learning Environment", "Institute of Information Technologies and Learning Tools of the National Academy of Pedagogical Sciences of Ukraine", "Department of Computer-oriented Teaching Aids", etc.

Vkontakte (vk.com) was created for students in 2006. This resource still enjoys a great popularity as one of well-known electronic social networks. It is a universal tool to keep in touch for different age groups: friends, classmates, classmates, students, neighbours, colleagues and so on. This social network belongs to Mail.Ru Group. According to SimilarWeb, the social network "Vkontakte" is ranked among the five most famous social networks in the world – top 5 in Russia and Ukraine. Vkontakte has a daily audience of over 35 million users. But since the Vkontakte network was banned in Ukraine, many Ukrainians have switched to other social networks.

Instagram is a social network whose main function is to share photos. It allows users to take and send photos within their service and through other social networks. The promising potential of Instagram for creating educational projects has its own characteristics. First of all, the audience is younger than the audience of other social networks, so it is easier to convey information to them. Moreover, Instagram has a more convenient interface than Facebook. Instagram also allows us to submit information in various formats (photos, text, short videos, full length videos), making it easier for the user to control the time of perception of information. There are many bloggers and Instagram users who exercise educational activities and this is perceived naturally and positively. These features explain why Instagram can be a progressive educational environment.

LinkedIn was developed as a social network for accessible business communication of active people, registered users willing to create and maintain a list of business contacts. However, LinkedIn requires preliminary contacts with people. In this case, the user has no direct contact with the person and may be introduced only by another person. LinkedIn users have a different list of contacts: thus, an outside user can be introduced through registered people and expand connections; get acquainted with research companies, individuals, find interest groups; publish professional resumes and look for a job.

Google+ (plus.google.com) is a social network built by Google, the use of which allows us to communicate over the Internet with special components: groups, chats, video calls. The social network is available to users from 26 January 2012. So, we can assume that compared to other social networks, Google+ is a “newcomer”. The network is based on the concept of social circles, according to which users can regulate their communication, creating an unlimited number of social circles, including their colleagues and friends. After all, on the basis of social circles the user shares content, determining which circle will have access to information and which will not. Today, the term SC is usually understood as a virtual platform, website, web service or portal on the Internet, aimed at uniting as

many people as possible, giving them maximum opportunities to communicate with each other. In scientific terms, the notion “social networks” refers to any social structure and diversity of social relationships, but in modern discourse it refers primarily to online networks, which are created in cyberspace and provide remote communication and networking between members of the so-called network structures.

Development of social networking services began in 1995, when Randy Conrad founded Classmates.com to search classmates. This site was significantly different from the existing social networks, as users could not create profiles, keep online diaries and “add” friends. However, it was possible to determine the location of people.

It is still functioning and despite the competition has got 50 million registered users. The first modern social network was the site “Six Degrees”, where you could already add each other as friends (1997–2001), and two years later LiveJournal was launched. In 2002 Friendster was opened, where you can search for potential friends. These days it is most popular in Asia. In 2003 such social networks as Linkendin and MySpace appeared. Finally, in 2004 Mark Zuckerberg created the well-known Facebook.

It can be assumed that social media as a teaching tool emerged in 2005 after the introduction of Web 2.0, and was defined as a group of Internet-based programmes which rely on the ideological and technological basis of Web 2.0 and enable creating and sharing generated users [97; 114].

Social networks are divided into three categories: for business, specialised networks, general networks. The main positive feature of social networks is their publicity, which is primarily important for various forms of education (formal and non-formal). Social networks promote lifelong learning and new knowledge; provide an opportunity for the presentation of achievements, publishing activities; improve absorption of information during discussions, debates, etc.; ensure the exchange of information in the

shortest possible time. Such organisational conditions undoubtedly affect the professional growth of the specialist.

Now the Facebook News Feed is updated with educational elements: people are ready to share with friends and keep information for themselves to memorize, such as foreign words or rules. The social network provides an opportunity to create interest groups within the virtual social network, to exchange materials – there is an opportunity to share with other users (documents, photos, videos, bookmarks, presentations, Books in electronic formats, etc.).

Such social networks as Topessayservices.com assist students to write essays and other works as electronic resources. Social media platforms act as research centres and give useful information through discussions on scientific topics, so an original solution to a scientific problem can be found in such a community.

Social platform LinkedIn supports a person in creating professional portfolio, even if the user is still a student. Social media helps students meet the best professionals for their chosen career or specific course of interest. Using social media students easily solve homework and find ideas for creative projects. They also rely on the Internet to achieve their educational goals, when they look for ways of interaction with other students and the teaching staff online.

Social media reviews show that students embrace their mastery with Paper Help and do their homework on time [100]. Though we should remember academic integrity and clearly defined frameworks of assistance.

Rahul Jain, a founder and director of FMA Digital (positioned as one of India's leading digital marketing companies for higher education institutions), explores the new role of social media and its importance in teaching and learning focusing on the following aspects: the use of social media in teaching new professional culture of management through students' online involvement, which is very important in today's business environment [98; 99].

It teaches them how to develop an active Internet presence by improving their communication skills; in addition to simply exchanging views, they also exchange valuable and useful information for classes and exams, which helps the student in self-organisation. As for universities, social media is a great marketing tool for appealing to prospective students. These new media prompted educators to develop a powerful marketing strategy to raise awareness of the university and create its image through social media. Social media provides joint opportunities to promote research initiatives through surveys, statistical samples, opportunities to find out about the opinions of knowledgeable people and other experts on a particular topic.

Social media can help researchers realise creative ideas by working on mutual tasks and projects. Due to the dynamics of the educational process, it is sometimes difficult to give a comprehensive answer to students' questions at classes, and this complicates the further perception of the educational material. However, professors can take advantage of social media technologies to extend their teaching time outside the university. They can organize live sessions on Facebook or discussions on Twitter, Zoom, to highlight information that is ambiguous for students. Teachers can give special time intervals for online discussions to answer any question or work with a student. During Facebook sessions teachers can communicate with a large audience at once, which is not possible with a large number of students in the classroom. Rahul Jain considers the creation of a personal blog or website as another key point for the educational process that enables forming a teacher's own intellectual credibility, namely, uploading their academic papers and other important lectures and videos, which will allow students to take relevant materials as reference materials for their studies. On social networks teachers can help students determine the appropriate vacancies and find useful connections for their future profession [100].

The broad aspect of using social networks in education is determined by the following: 1) a comfortable environment and a clear interface,

means of communication, organisation and forms of content presentation are understandable and familiar to students; 2) various forms of interaction and communication to provide a wide range of opportunities for inclusion in educational activities; 3) the ability to exchange links to other educational resources; 4) according to the student's profile, the teacher can develop a personal approach to the student and provide a better presentation of the material; 5) thanks to the option of filtering according to the relevant criteria, you can easily find the right content; 6) the opportunity of involving experts, consultants, specialists in certain disciplines into the educational process; 7) wide demonstration opportunities and the opportunity to share any content freely with students at any time; 8) information-communication support of the course in the social network allows students to participate in discussions and perform tasks from anywhere, provides a thorough knowledge acquisition; 9) joint (listener and teacher) creation of educational content becomes possible; listeners create messages, discussions and other resources instead of simply consuming information; 10) shy students feel more comfortable and become more active participants of the pedagogical process; 11) social networks (SN) break down psychological barriers and make the teacher more socially accessible for the listener in terms of communication; 12) on SN you can easily remind each other of important dates and events; 13) you can create group chats and group video calls; 14) thanks to SN students and teachers can find out about various events, conferences, round tables and participate in them; 15) the opportunity of conducting surveys, discussions, focus groups.

Such social networks as Biology, Geology Rocks, Mathematics, Science Group, Theoretical Physics, Ukrainian Scientists Worldwide are increasingly becoming a full-fledged application of university communities, where it is possible to share views on development prospects, victories and achievements. A bright example of using Facebook is Vinnytsia National Agrarian University. For many years on Facebook and other social networks the university has been covering

interesting events in student life, scientific events and current issues of modern education.

Thus, we can summarise the following positive aspects of using virtual social networks for educational purposes (Fig. 1.1).

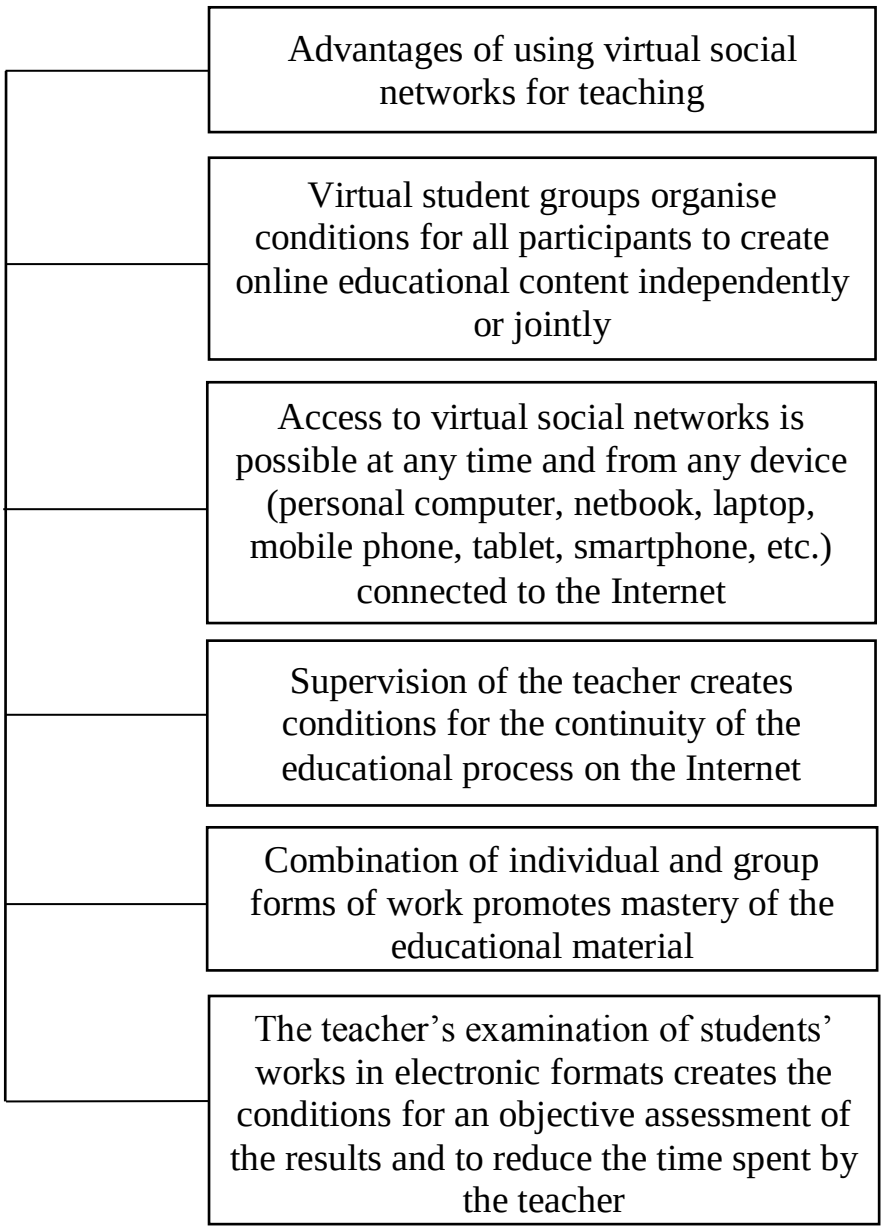

Fig. 1.1 Positive Aspects of Using Virtual Social Networks

The conducted survey has shown that 98% of students of Vinnytsia National Agrarian University, who have access to the Internet, use at least one social network (in most cases, Facebook). It is a particularly curious fact that although some students use social media for entertainment and other purposes, many use it to search for educational or scientific

information, and are interested in covering information about the university. This is a significant evidence of democracy, openness and access to information at Vinnytsia National Agrarian University.

Examples of the most famous pages reflecting university scientific news with the ability to comment on them are “A Moment of Science”, “California Science Center”, “International Association for Political Science Students”, “National Science Foundation”, “Popular Science”, “Science Careers” and others.

Despite the positive aspects of using social networks for educational purposes, it is necessary to pay attention to the position of scientists who emphasize that social networks provide an opportunity to form general competencies only if the educational process is carried out by social-professionally competent pedagogues, who fully possess communication skills on social networks [25].

Gamification in education or learning as a game is the use of online tools and games to create training courses, assessment in the form of bonuses instead of grades. Implementing the developed tools of computer games enables to increase motivation in learning, create a spirit of competition and encourage students to improve their levels. Educational games for different educational areas are already being developed today. There is, for example, a game simulating the process of a climate change, economic games such as “How to Start Your Own Business” or games where you can try your hand at the world diplomacy have been developed. Of course, these games are just another educational tool in the arsenal of the teacher. The teacher must be very critical in the choice of educational games and clearly understand their goals [43].

The idea of gamification in education has deep roots in both psychology and modern information technology. From the viewpoint of psychology, game technology is one of the mechanisms of influencing human behaviour using game elements. Game situations enable releasing human potential, overcoming social and psychological limitations, that also provides active formation of social competences.

Deterding S., Dixon D., Khaled R., Nacke L. [113] identify several areas of game technologies (Fig. 1.2).

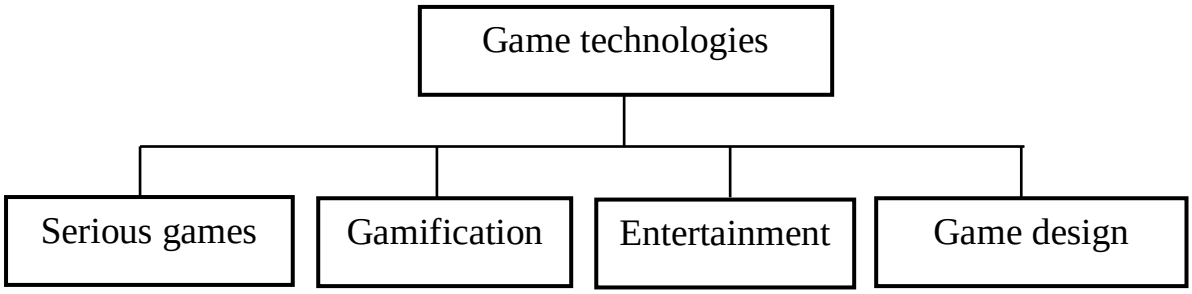

Fig. 1.2 Development Directions of Game Technologies

Source: Compiled by the authors [113].

In our opinion, the format of game technologies cannot be considered as the only or the best one to form general or vocational competencies. Gamification in education should be studied carefully as an innovative educational environment with mechanisms of human development which require research and experimentation. Yet there are no clearly defined conceptual tools for introducing gamification into education.

Gamification is supposed to reflect well-defined rules, experimental, social and representative game design schemes, which come to the fore, the player's participation in the game and his / her communication with other players, and the cultural behaviour of participants that depends on the contextual game design [114].

Scientists distinguish certain aspects which ensure the efficiency of humification: the presence of clearly defined goals that motivate participation in the game; logic and consistency of the rules which set the limits and frames of achieving the goals outlined in the game; adherence to a stable feedback system, which monitors the achievement of goals, and game participants follow the rules; voluntary consent to learn in the game and understanding of their own motives for participation [5; 8; 25; 31; 43; 47].

Overcoming the routine of educational activities can be defined as one of the positive features of gamification. In the state of the game,

participants focus on their own activities, clearly aware of the comments on their actions. Psychometric analysis shows a significant relationship between the components of the gamified process and the state of the flow [43].

Playing the game various human behavioural models are activated: cooperation, competition, sense of community belonging, accumulation of experience, achievements, progress, analytical activities, etc. If simulation games are considered important for the reproduction of professional activities, then role-playing games are aimed at solving life situations by the participants. Game design provides easy perception and comfort of participation in the game. It should be kept in mind that the implementation of business games in the educational process requires clarity, consistency and coherence of all stages. In this regard, O. Diadikova notes that game elements can improve the process or reduce it to nothing. Using games will not create attraction from scratch. Gamification cannot correct mistakes made at the level of planning and management, but can strengthen the already built and well-established model and increase motivation.

YouTube contains a huge number of various methodological and content-oriented videos – short video lessons of the best teachers from around the world, full courses from leading universities, materials for vocational training and self-improvement compiled by members of the scientific community, and videos from world-renowned scientists. For those wishing to learn foreign languages on the video server you can watch phonetic trainings, language lessons using basic and socio-political vocabulary, movies and videos, whose fragments can be used in language teaching, tours, news, you can watch any video on any topic. On YouTube EDU pages there are the best educational videos, lectures from the world's most prestigious universities and content from specially designed educational platforms (Khan Academy, VSauce, Crash Course, Veritasium). This provides virtual communication with famous scientists from different countries, attending their lectures and even participation in

discussions. Visiting https://www.youtube.com/user/teachers/featured, you can get familiar with the formats how other educators use videos in their courses.

A blog, or Weblog, is a virtual diary, a personal site of the user, consisting of hierarchically added records (posts), images, video and audio files. The blog is social, i.e. it involves communication between the author and readers. Recently blog technologies have been actively used in the educational process. In a modern pedagogical research there are five main areas of using blogs in educational practice:

✓ a platform for various discussions;

✓ a platform for consultations and obtaining additional knowledge;

✓ a platform for organising the training of students in the basic and / or extra-curricular courses;

✓ a platform for organising a distance learning course;

✓ a platform for organising network research activities of students.

Considering the blog as one of significant tools for forming educational-cognitive competence and summarising current researches, we can distinguish the following benefits of blogs for students and teachers (Table 1.1):

Table 1.1

Opportunities for Using Blogs in the Educational Process

Benefits for students:	Benefits for lecturers:
✓ the opportunity to use the blog anytime and anywhere (regardless of age, profession or schedule of training or work of the user); ✓ learning is asynchronous: the student has access to the blog and its components at any time; ✓ learning can be synchronous: blogs allow to send instant messages (in the "chat" mode), which means synchronous communication.	✓ the opportunity to conduct classes anytime and anywhere; ✓ constantly publish and update materials and information with the guarantee that students will immediately see the changes; ✓ manage the educational process, give students advice, help; ✓ create lists of Internet resources and other reference materials to help future professionals; ✓ develop communication and cooperation with other lecturers and students.

Source: Compiled by the authors [113].

Summarising the benefits of blog technologies, it should be noted their accessibility, versatility, interactivity, convenience, asynchrony (even in case of absence in the classroom a student has an opportunity to comment and discuss the material of the educational topic) [114]. In other words, the blog becomes an information space for learning and communication.

Along with positive aspects, there are some shortcomings in the use of SN: 1) distraction from other stimuli (messages from other people, notifications); 2) dependence on the quality of the Internet connection, dependence on the technical equipment. It is logical to assume that if there is no electricity in the house, the Internet, computer or smartphone with appropriate programmes which support the format of some files, the educational process on social networks will be impossible; 3) a great deal of information can cause fatigue, information overload; 4) superficial perception of information without delving into it, which complicates the assimilation of information; 5) too frequent surfing on social network sites causes addiction. Then a person does not want to "return" to the real world and leads a secluded life. It should be added that "hanging out" on social networks distracts from real things. Therefore, you need to be able to organise time for social networks so that they do not interfere with real life.

Thus, the use of social media and mobile devices has both advantages and challenges. Most of the advantages are seen in access to the content of training courses, video lectures of university teachers, communication with teachers and groupmates, etc. On the whole, students believe that social media and mobile devices are cheap and convenient tools for obtaining the necessary information and job hunting. Pedagogical researches also confirm that the use of social media on the Internet for collaborative learning makes a significant contribution to success and makes learning accessible. The researches have proved that electronic devices and social media create opportunities for students to learn together and also allow students to share resource materials with colleagues [108].

The results of the student survey conducted at Vinnytsia National Agrarian University have confirmed the positive impact of using social media on teaching for organising students' self-educational activities.

Social media and mobile devices allow students to create, edit and share the course content in text, video or audio formats. These technological innovations give birth to new culture of teaching, based on the principles of collective research and interaction.

The use of digital teaching methods in the world demonstrates high efficiency and is an example for Ukrainian education in the implementation of social media while learning. The Ukrainian education sector as a whole has not yet made the transition to curricula and pedagogical practices which meet the potential of the digital society, and today these opportunities for the educational process have not been fully elucidated. So, only Facebook has just begun testing the online learning option, and it means there is no research yet on how social media is used successfully in classrooms. At the same time, Facebook is the most popular social network, but there is no information yet on whether it is an effective teaching tool. Student efficiency, inclusiveness and accessibility, innovation and improving the quality of education are main priorities of modern higher education. Social media as an online teaching platform can help address these issues.

1.3 Informal Learning and Lifelong Education

In modern society, informal learning is becoming increasingly important. To understand this phenomenon, it is necessary to research the main types of education systems, such as traditional formal education, peculiarities of non-formal education and to characterise the process of informal learning. Formal learning takes place at education institutions (according to the defined educational goals) in an organized structured context and leads to certification. Certification generally means the issuance of an official document on the assignment of the educational qualification level, which is recognised by the state and is often the basis

for employment or appointment to official positions (certificate, diploma of higher education). Non-formal education takes place outside education institutions and usually does not lead to official certification, but at the same time non-formal education is provided takes systematically, it defines the goals, educational outcomes, duration of training.

Any educational activity outside the formal system is interpreted as non-formal education. This type of training includes training in clubs, circles, various courses, trainings, short programmes. Certain certificates may be issued in this type of training, but they are not educational documents recognized by the state as official. Informal learning refers to learning that occurs in everyday life, at work, in the family or in leisure time. As for the goals of training, the duration of training, they are not structured. The term "informal" indicates that such training takes place without procedural formalities, so this type of training does not provide for certification.

Here it is necessary to note one very important feature of scientific literature in the English language: very often the terms "non-formal" and "informal" are used interchangeably. This makes scientific communication extremely difficult, as the dispute over the essence turns into a dispute over notions. Only when "non-formal" and "informal" are simultaneously used in a literary source, we are sure that the author distinguishes them.

Scholars distinguish three forms of non-formal education: *self-directed education* that covers elements of intentions and awareness; *incidental learning* is learning when there is no category of intentions, but there is an awareness that the process of acquiring knowledge has taken place; *socialisation* – there are no categories of intentions and awareness [12; 16; 37]. Self-directed education encompasses elements of focus and awareness, because the person has a desire to learn at the beginning of the process and realises that he has learnt something. Incidental learning is learning when there is no category of orientation, and having some experience, a person understands that the educational process (has awareness). Socialisation refers to the internationalisation of values,

attitudes, behaviours, skills, occurring in everyday life. In this case, there are no categories of orientation and awareness [90; 91]. This form of education does not always involve the issuance of certificates, diplomas confirming the level of qualification obtained after its completion. According to scientists, non-formal education is an educational activity which is driven by educational needs, the desire of young people to acquire the necessary knowledge or skills, takes place outside the programmes of education institutions. Namely, such education covers all education outside the programmes of formal or non-formal education institutions [11].

Non-formal education usually relates to a hobby in any field of science or art. Such education is associated with the desire to broaden the horizons, acquire knowledge and skills needed in both personal and professional life. Non-formal education is institutionalised, purposeful and planned, it is a supplement and / or alternative to formal education.

At the same time, informal learning is an individual cognitive activity (life experience) that accompanies everyday life and is not necessarily purposeful. It is a process of forming and enriching attitudes, acquiring new knowledge, skills outside the education system as a specific social institution, namely, in the course of everyday life through communication and reading, visiting cultural institutions. This learning is based on individual experience and the experience of others. Informal learning is deprived of the attributes of a pedagogical form [66]. The Law on Professional Development of Employees refers to informal education as a spontaneous, accidental, secondary education that occurs in the implementation of other, non-educational activities, acquired with the life experience of the person; non-formal education is a learning activity carried out outside the formal education system. Formal education, in its turn, is an institutionalised, age-based and hierarchically structured education system aimed at mastering a certain level, field, type of education according to the International Standard Classification of Education [64; 65; 67; 68; 69].

Informal learning largely coincides with the structure of adult life. Certain educational elements are present in almost all forms of social activities. The term “informal learning” includes unofficial, unplanned, sometimes spontaneous ways of acquiring knowledge and skills outside of education institutions, without a curriculum, without receiving a diploma or certificate. Today the process of gaining new knowledge is increasingly spontaneous: while discussing an interesting topic with colleagues or classmates over a cup of coffee, while watching news feeds on social networks or blogs, while searching for information on Google, while gaining new experience in practice. It is a well-known fact that in order to achieve effective results, the educational process must be structured, controllable and focused. However, the organisation of learning in non-formal conditions in combination with traditional teaching methods will increase motivation and help to establish the relationship between theory and practice. Moreover, the urgent task in training is the formation of a person’s willingness to update and deepen their knowledge constantly throughout life (lifelong learning), so informal education is becoming increasingly popular, and professionals, who want to succeed in their careers and to develop as a person, do not miss the opportunity to acquire new knowledge and skills in everyday life. Informal education has certain characteristics presented in figure 1.3.

A low level of organisation and structuring can be considered as a negative feature of informal education, it often occurs spontaneously and accidentally. Therefore, it is often equated with self-education [15]. Considering informal education in terms of its implementation as one of forms of conscious human activity, we look at self-education as a form of informal education. Informal education becomes an educational component, which is determined by the regulations of the Ministry of Education and Science of Ukraine. Thus, at Vinnytsia National Agrarian University, the programmes of academic disciplines provide the recognition of prior learning and credit transfer of educational components received by students who studied under an academic mobility programme,

non-formal and informal education in case of having relevant supporting documents. Today, for the purpose of further certification in the manner prescribed by applicable law, a certain procedure is proposed to assess the received educational outcomes while obtaining non-formal and / or informal education.

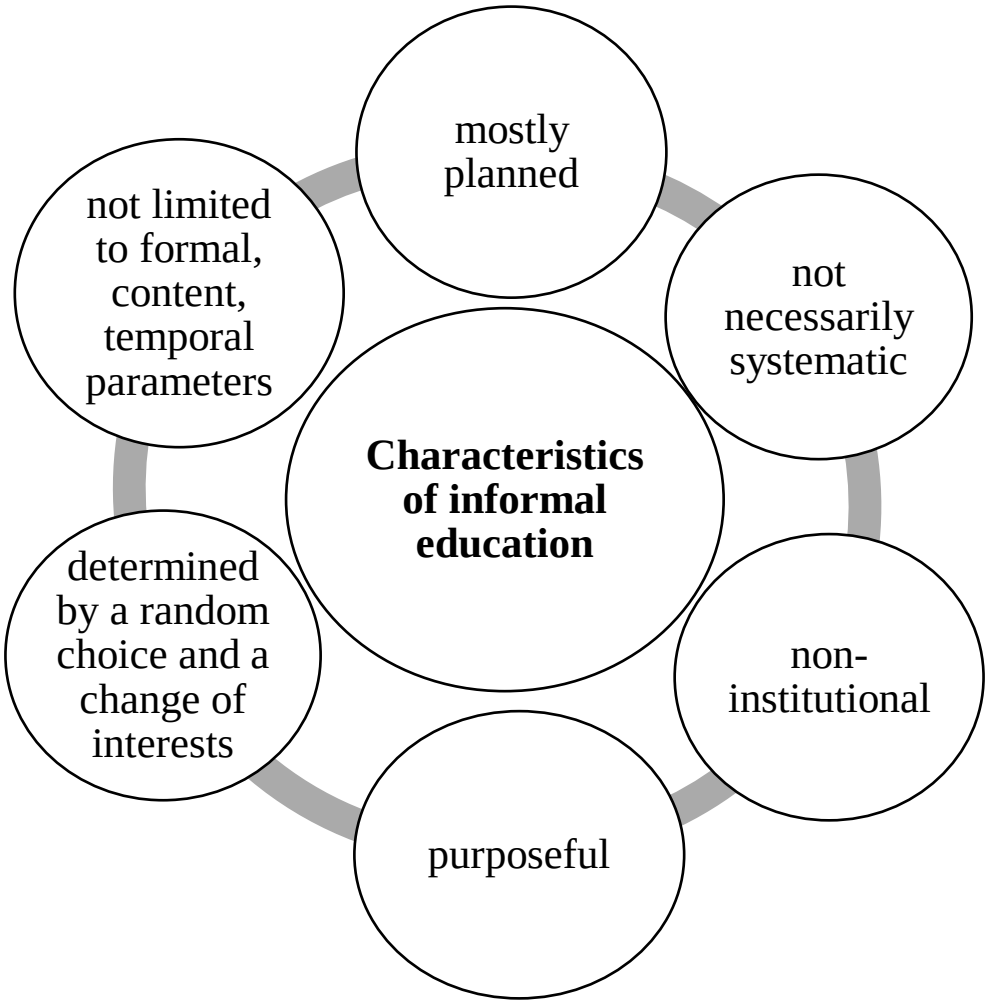

Fig. 1.3 Characteristics of Informal Education

Source: Compiled by the authors on the basis of the processed sources [6; 11; 16].

Identification of educational outcomes obtained in non-formal and / or informal education is carried out in accordance with the levels of the National Qualifications Framework. The educational outcomes presented in the educational declaration must be compared with the descriptor from the description of the fifth, sixth or seventh qualification levels of the National Qualifications Framework. The results of non-formal and / or informal education are subject to mandatory evaluation. It can be an

interview, various control measures, which are assessed on a two-point scale: “credited” or “not credited”. It is obligatory to record the results of the assessment in the protocol (score sheet) of the appropriate form. It should be noted that the obtained number of confirmed credits is equal to the number of credits according to the educational component. One control measure allows the recognition of the workload in the amount of one educational component, a comprehensive control measure – up to 15 ECTS credits [58].

The top five current educational trends mentioned above are completed by the tendency of life-long learning, the implementation of which combines elements of the above innovative approaches. Life-long learning is an approach to education, which aims at continuous acquiring new skills and knowledge in the chosen direction and, as a result, forming a student-centred education system and model of self-development. This concept has been developed and is being actively implemented in the countries of the European Union. The Council Resolution on Lifelong Learning emphasizes that such education should start at pre-school age and last until post-retirement age, and include the full range of non-formal and informal learning. Lifelong learning should be understood as all activities related to learning and aimed at improving the knowledge, skills and competencies required for personal, civic, professional and social development. At the heart of this concept is the individual. The Resolution proves that lifelong learning must be supported by EU employment actions and strategies, the Action Plan for Skills and Mobility, the Socrates, Leonardo da Vinci and Youth Union programmes, e-learning initiatives, innovation and research [51].

There should be clear parallels between the concepts of formal and informal education. To do this, let us try to identify the main differences between these forms of education (table 1.2).

Table 1.2

Key Characteristics of Formal and Informal Education

Formal education	Informal education
State decision on training Traditional adaptation to social values	Individual choice
Education at an education institution	Anywhere
Limited time, completeness	Life is a continuous learning process
Obligatory	Making your own choices
The quality of education is determined by the system	The quality of education is determined by the efforts of the individual
Subordinate relations	Choosing partners for communication
Pre-Planning and Goal Setting	Uncertain result
One type of education for all participants	Your own choice of education option
Traditional adaptation to social values	Emphasis on personal values

Source: Compiled by the authors on the basis of the processed sources [51; 66; 78].

New educational trends at the beginning of the XXI century increased the role of informal education in training and teaching people of different ages lifelong. This raises the pedagogical question of theoretical understanding the future of informal pedagogy as part of modern social pedagogy, which deserves the attention of many theorists and practitioners.

Researchers have paid considerable attention to the study of lifelong learning at various stages of the educational system in Ukraine. Prospects and opportunities for continuing pedagogical education have viewed by V. Kovalchuk [28], S. Nekrasova [41], M. Nechyporenko [44]. N. Nychkalo [46], L. Petrenko [60], V. Svystun [73], S. Sysoieva [79] have devoted their works to the concepts of continuous education development. Continuity of education as the basis of social progress has been revealed in the works of O. Sipakova [81], O. Akimova [82], V. Haluziak [82], H. Tereshchuk [83], I. Ziaziun [24], I. Tryhub [87], P. Kharchenko [91] and others. Scientists note that life-long learning is

characterised by flexibility, adaptability, continuity of all stages of education and the unity of all its forms. The concept of lifelong learning will equip all students with a set of competencies which will ensure their readiness to function fully in today's rapidly changing world. The pedagogue is required not to transmit directly some knowledge and information to students, but to provide pedagogical support and assistance in organising individual educational activities.

In the context of modern education it is important to understood lifelong learning as any purposeful learning, carried out on a continuous basis to improve knowledge, skills and competencies, which contributes to personality and social development and employment. Lifelong learning includes forming an active public position, personality self-realisation, social harmonisation, as well as aspects related to vocational training and employment. Due to the growing amount of information, professionals must be able to search for information that meets their needs, interpret and use it, as well as transform it into knowledge, i. e. be able to constantly learn and engage in vocational and personality self-development.

The Ukrainian Association of Adult Education conducts regular lifelong learning activities in Ukraine's cites, for this you only need to visit http://learnlifelong.net/platform. The online platform of non-formal education "Learn Lifelong" is implemented with the support of DVV International (Institute for International Cooperation of Deutscher Volkshochschul Verband) in Ukraine, the International Center for Non-Formal Education and the Ukrainian Association of Adult Education.

The online platform of non-formal education will provide information on educational programmes implemented in Ukraine, help to establish communication with education institutions, help create conditions for the full realisation of an individual potential and increase his / her social, civic activity and responsibility. In the conditions of quarantine for each teacher multimedia courses of digital technologies of distance learning, Photoshop for beginners, on-line course Web Design, Java Base and others will be useful. The convenience of using the site is provided by the format of management, the choice of the target audience, which provides an opportunity for professional communication. Taking into consideration the

current economic situation, it is important to have a significant number of free courses.

Information and multimedia technologies are evolving at a rapid pace. New mobile devices with completely new functions and capabilities are constantly appearing, the quality of transmitted multimedia streams is improving every year, and social networks are becoming an integral part of the lives of many people. Informatics and information technologies penetrate into all spheres of pedagogical activities. To master them, new knowledge and skills are needed.

Modern students use ICT at a new level, they communicate sending photos, videos and sounds, as well as using text, they know how to work with many sources simultaneously. Modern youth is ready to create their own sources of information and rework existing network resources. Thus, the task of pedagogues is to organise information and educational Internet space and content, which can include many web applications necessary for efficiency of the educational process.

In the modern information world, a specialist needs the ability to select information, use it and transform it into knowledge independently, take responsibility for their intellectual and moral level, and therefore organise the process of self-development.

The National Strategy of Education Development in Ukraine for 2012–2021 prioritises the development of modern information and communication technologies which improve the educational process, accessibility and efficiency of education, training the young generation to function successfully in the information society.

Understanding the need for continuous replenishment of knowledge, development of vocational skills has led to designing the system of continuing education, advanced training. Various programmes and projects are being created to develop strategies and methods for implementing lifelong learning. Many researches are being conducted in the direction of creating conditions for self-affirmation, self-realisation and self-determination of the personalities, which is the result of their self-organisation.

CONCLUSIONS

Modern educational technologies are focused not only on forming future specialists' knowledge, but also enable the development of social skills necessary for life and career.

Electronic learning is becoming an integral part of modern education. Nowadays among the educational trends the focus is on Mobile Learning and Pervasive Learning, which provide students' access to information anytime and anywhere.

Blended learning as a modern educational technology combines different forms of learning (classroom and electronic), which expands the didactic possibilities of the educational process.

Gamification in education is based on the psychological peculiarities of human assimilation of information, allows making the educational process more comfortable for the student.

Development of social networks in educational systems gives many useful tools which can make learning more interesting, effective and creative promoting strong vocational personality growth.

Today students widely use social networks in all aspects of their lives. Ignoring the use of social networks leads to the loss of potential audiences, and their use for universities is a powerful organisational mechanism.

There are many benefits of social media for higher education. Sites on social networks offer great opportunities for communication between peers and lecturers and enable creating interest groups.

Using social media, pedagogues can improve the involvement of their students not only in learning, but also contribute to forming the readiness for vocational personality self-development by involving students in new forms of communication, improving technological skills, new collaborations in lecture halls and outside the university.

The analysis of forms of education provides grounds for the following definitions. Formal education is a structured education organised and conducted within the formal education system to obtain a qualification degree. Non-formal education is a structured education organised and

conducted outside the formal education system for skills development. Non-formal education is considered as a type of organised and systematic educational activities in which there are no uniform standardised requirements for the results of educational activities. However, it is characterised by such qualities of training as expediency, credit transfer procedure, lectures and seminars, assessment system, certificate of completion. This is the basis for higher education institutions to take into account the knowledge acquired in this way and to consider it during the sessions. Non-formal education becomes an important component of "supplementary education" or "self-education" in describing the realities of the modern world, where the process of acquiring new knowledge and skills accompanies the individual all life long, obtaining various forms.

Informal Learning reveals itself as unorganised, unstructured, unsystematic accumulation of knowledge, skills development and formation of competencies of people of different ages. In the context of modern educational forms, it becomes essential to view competencies in the standpoint the concept of "competence". We believe that competence should be measured as an integral characteristic, a complex personal formation that provides a specialist's vocational personality self-development, the formation of value-semantic orientation, subjective position, experience of professionally oriented activities based on comprehensive knowledge and acquired practical experience. Thus, the concept of "competence" can be attributed to the range of educational realities which prove the integration of formal, non-formal and informal education, which are purposefully differentiated in this chapter.

CHAPTER 2
THE ROLE OF A PEDAGOGUE IN FORMING FUTURE AGRARIANS' READINESS FOR VOCATIONAL PERSONALITY SELF-DEVELOPMENT

The transformation of a pedagogue's roles in modern society on the basis of retrospective analysis has been researched. Differences in the functions of the teacher in the process of transforming pedagogical activities have been revealed. The professionally significant personal characteristics and competencies necessary for a pedagogue in current conditions have been distinguished.

2.1 Challenges of Modernity on the Way of Pedagogical Activity

We live in a new epoch – the age of knowledge. Knowledge and competence have become the main competitive advantage. The current pace of socio-economic development requires the personality to constantly update, learn new tools and rethink existing ones.

In recent years, Statistics show that the half-life of knowledge, which means the time period of obsolescence of knowledge, has decreased to 5 years. Therefore, the acquired knowledge may not be relevant in a few years.

Today workers in many specialties, especially pedagogues, are faced with the need to update and deepen their knowledge regularly in order to perform their work effectively and remain in demand in the labour market. According to expert forecasts, in 2022 the most demanded in the labour market will be the abilities to learn all life long, think critically, set goals and achieve them, work in a team, communicate in a multicultural environment [51].

The processes of globalisation, the rapid spread of information and communication technologies, personality-oriented and competency-based approaches in education, modern pace of life, reforming the education system make new demands on the professionalism, personal characteristics and competencies of modern pedagogues.

Innovators, discussing the project of modern higher education, emphasise that today pedagogues mostly use outdated teaching tools. The digital divide between a teacher and a student is widening. Many pedagogues are not yet able to research problems with modern tools, work with large data sets, draw and present conclusions, work together online in educational, social and scientific projects. Teachers are demoralised by low social status and wages. The teacher has no real motivation for personality and professional growth [6; 12; 14; 32; 41; 61; 82].

The National Strategy of Education Development in Ukraine for 2012–2021 prioritises training the personality with innovative thinking and culture, designing acmeological educational space taking into account the innovative development of education, individual demands, needs of society and the state, a key role in solving this task belongs to modernizing the training and education of pedagogues who can work on the basis of innovative approaches to the organisation of the educational process, their own creative and continuous professional growth [67].

The Sectoral Concept of Continuing Pedagogical Education emphasises the relationship between the quality of education and the development of the state's intellectual capital, the need for continuous improvement of training and retraining of the scientific-pedagogic staff, owing to changing a human role in the modern world, vision of a person's education and setting new requirements for the quality of human capital in accordance with cultural, spiritual, socio-economic and technological transformations, as well as the numerous challenges at global, European, national, regional and local levels [69].

At the present stage of the society's dynamic development there are fundamentally new requirements for teachers, and higher education should

abandon the acquired stereotypes in the training of future professionals and organise the educational process in the way for students go through all stages of vocational development to get holistic experience of independent activity.

There is an active search for a new methodological system, which focuses not only on the personality's intellect, but also on the emotional and subconscious spheres of the individual so that the student from a passive object becomes a subject of the educational process, which aims to purposeful and comprehensive study of the personality, his / her educational and professional orientation.

The strategy of vocational training of a pedagogue in conditions of formal non-formal and informal education, e-learning, is based on forming the professional competence necessary for the practical activities of teachers, as well as the ability to learn all life long, vocational personality self-development.

Analysis of global trends in the field of vocational education shows an increase in requirements for pedagogical professionalism and personal qualities of the teacher. According to scientists, in this millennium teachers will face a number of challenges:

✓constant increasing the level of sophistication of the educational content, independent formulation and solution of creative and research tasks;

✓search for new approaches to raising the so-called generation Z;

✓the need for continuous mastering of advanced teaching technologies;

✓solution of difficult professional-pedagogical problems, competence approach in education;

✓readiness for lifelong learning, responsibility for their vocational personality self-development

✓work in a single information environment, which involves the rational use of information technologies in the educational process.

These challenges require the teacher to integrate the processes of

vocational activities and constant personality self-development, to define personal strategies which allow persons to transform their ideas flexibly and effectively as professionals who can change themselves adequately due to public order [10; 26; 82].

In response to the challenges of our time, there is an expansion of the role paradigm of a pedagogue. Along with the traditional roles (pedagogue-organiser of educational activities, pedagogue-educator and pedagogue-mentor), the pedagogue needs to perform such roles as tutor, moderator, facilitator. The transformation of the pedagogue's role is required due to the influence of external and internal factors, innovations in education, the need to be relevant while growing intellectualisation and dynamism of the work, increasing the volume and role of information, the widespread use of information technology.

Mew roles of modern pedagogues include innovative ideas and approaches to educational, psychological and pedagogical activities.

Tutor. The phenomenon of tutoring is closely linked to the history of European universities and originates in the UK. It took shape in the late fourteenth century in the classical English universities (in Oxford and later in Cambridge). Since then, tutoring is understood as a developed form of university mentoring. Tutor is a historically formed pedagogical position, which provides the opportunity to develop individual educational programmes for students, accompanying the process of individual advancement in school, university, additional and continuing education systems. Tutor is a person who teaches or guides another person to solve problems (change them into tasks); it is a position that accompanies, supports the process of self-education, individual educational search; the culture formed in history simultaneously with the culture of teaching and learning. However, tutoring in the current conditions of development of the education system acquires a broader meaning. The tutor organises activities to solve educational and life problems in specific situations which offer ways to solve them. A tutor in modern pedagogy is a teacher-consultant and coordinator. Its goal is to create an educational environment

that will allow the student to acquire knowledge and skills as independently as possible, learning in a convenient way within the frameworks of a training session.

At the same time, the tutor helps to use educational materials, the Internet, the practical experience of other students effectively. Thus, the system of knowledge is is shaped by the students' work, activities and practice. The coordination of work activities by the tutor is aimed at assisting in setting the problem, determining the purpose and objectives of the activity, planning actions for implementation, analysis of the work results. The tutor advises and supports students in the process of their independent activities. Moreover, it creates a favourable creative atmosphere, where criticism of students' ideas and statements, imposing your views or research strategy is inadmissible. The tutor is able to listen and highlight important points in any statement of the student. The teacher guides the student with the help of overview information, stimulating questions, advice, as the organisational role of the tutor prevails over the educational one.

Educational activities coordinated by the tutor help to form the following students' qualities: initiative, friendliness, openness, observation, creative and intellectual activity, ability to make non-standard decisions, flexibility and critical thinking, careful and attentive attitude to the experience of elder people, optimism, tolerance.

Facilitator. The concept was introduced by the classic of psychology Carl Rogers. The English verb "facilitate" means "make something possible or easier, promote". Hence, the main task of the teacher-facilitator is to simplify and at the same time stimulate the educational process, i. e. the ability to create in the classroom the appropriate intellectual and emotional environment, the atmosphere of psychological support.

Learning is structured in the following way: the teacher helps to formulate goals and tasks for a student group or for each student individually, and then creates an open and comfortable atmosphere that will encourage them to solve problems. At the same time it is important for

the teachers to be themselves, express their thoughts and feelings freely; 2) demonstrate students trust and confidence in their skills and abilities; 3) show empathy, i. e. understanding the feelings and experiences of each student.

According to the research [97; 103] with a facilitating learning style, students are less likely to miss classes during the school year, have more positive self-esteem, make more progress in learning, have fewer problems with discipline and show a higher level of thinking and creativity.

The teacher-facilitator, working with students, stimulates their independence and responsibility in choosing courses, in determining educational goals, ways to achieve them, in assessing their work results; creates favourable conditions for independent and meaningful learning; motivates, encourages interaction in educational work. This is what Carl Rogers and Jerome Freiberg describe in their book "Freedom to Learn". Scientists have collected a great deal of factual material which demonstrates the real benefits of student-centred learning and education at various stages of the modern education system. The research contains information on specific ways and tools of restructuring the teacher's personality and his / her relationships with students, as well as general theoretical chapters devoted to such central aspects of Rogers' psychological theory as freedom, values and a fully functioning person.

Coach. Nowadays in educational practice the notion "coaching" is the most common. "Coach" is often used in the meaning of "instruct, inspire, train for special purposes, prepare for certain tasks". Numerous publications on the problem of coaching reveal the rich potential and universal nature of this practice, the possibility of its successful use in the education system at various levels. Sources argue that, appearing in the early 70's of the XX century in the United States in sports, coaching quickly spread across the planet and became a full-scale demand not only in business but also in everyday life. It is recognised as the most modern and effective tool for vocational personality self-development. Scientists argue that the processes of decision-making, planning, motivation,

delegation, conflict management, negotiation, etc. through the prism of coaching are faster, brighter and much more effective. With the help of open questions addressed to internal resources, the coach actualises subjective activity in achieving success and accompanies the student in long-term individual personality self-development.

Stimulating students' reflection on their educational and life needs, goals, their potential and individual characteristics, the coach creates conditions for independent success, competence, for designing an individual educational route, for individual personality self-development.

Mentoring practice is also becoming more and more widespread. Mentoring is traditionally understood in education as a didactic, personal long-term relationship between an experienced mentor and a novice student, which allows the latter to develop professionally, academically or personally. The main functions of the mentor are to activate the students' own abilities. This applies to both goal setting and the choice of methods, analysis and assessment of the results, which allows us to move away from the model of knowledge reproduction, an outdated model of education.

Quite often we can also find the term teacher-adviser. ***Adviser*** is a teacher who acts as the academic consultant of a student studying in a particular specialty. In modern educational practice, there are three main functions of the adviser: 1) to help the personal growth of students; 2) to assist in the development of curriculum content; 3) to help maintain traditions in the student culture of a particular university. In the context of student practice, this function can be implemented in the field of work with gifted students: in preparation for competitions at various levels, as well as accompanying the implementation of scientific work of students.

Having analysed the above mentioned models and roles of a pedagogue, we can conclude that they flow smoothly with each other, sometimes duplicate, sometimes complement each other's functionality, depending on the differences in situations and educational tasks. They open a huge field for modern self-realisation, the possibility of implementation and application of all aspects of their pedagogical

personality in various forms and types of educational activities, which will contribute to such an important task of modern education: forming a self-developing student.

Who are teachers of the XXI century, pedagogues of the future? Are they facilitators, tutors or coaches? The teacher of the future is, first of all, a holistic personality, capable of self-discovery and self-development, combining all new qualities and roles of a teacher and ready not only to transmit the knowledge, but to learn to use it, seek to acquire new, navigate in the modern dynamic, informational, pluralistic world. This ability of a student will be nurtured by a pedagogue with the guiding influence, attitude and personality. And if education reveals itself in many ways as the art of creating role models, then the professionalism of the modern pedagogue is flexible and appropriate use of a wide range of professional roles and personal characteristics.

The roles of a pedagogue's personality and his / her life position have a decisive influence on the efficiency of learning. The educational process is not only the transfer of necessary scientific information, but also the process of interaction between the pedagogue and students – their interaction with each other, exchange of emotions, thoughts and experiences.

The task of a modern pedagogue is to create a special creative atmosphere, where the subject-subject interaction of participants in the educational process is realised. Under conditions of rapid dissemination of information, a teacher no longer acts as the main source of knowledge, the pedagogue's task is to manage the process of learning, the teacher must not only satisfy a human desire for knowledge, but also motivate. A good teacher does not pass on the amount of knowledge, but by personal examples shows how you can get the necessary information, how to apply the acquired skills in practice.

The personality of the teacher depends on social conditions, peculiarities of the organisation of the pedagogical process, personal potential and ability to meet the needs of modern changes in education.

Professional productivity is based on the inner world of a man: interests, values, motives and goals, responsibilities, intelligence.

As practice shows, students are willing to study the subject, the teacher of which evokes respect and sympathy. A student perceives a teacher, first of all, as a personality. The system of knowledge that he forms, its educational opportunities are perceived by students in the context of the teacher's individuality.

The issue of a teacher's personality is raised in the scientific works of many researchers. Coryphaeus of Ukrainian pedagogy V. Sukhomlynskyi wrote in his famous work "One Hundred Tips for Teachers" that school is primarily a teacher. The teacher's personality is the cornerstone of education. Coryphaeus sees in the personality of the teacher a number of qualities which are important for work. First, the teacher must be a humanist who has such qualities as love and respect for children, kindness, deep faith in good deeds and creative nature of the child, the desire to understand and the ability to put yourself in children's place, live their interests, study their personalities, a desire for self-education, deep, diverse knowledge, the ability to manage their mental state, the ability to speak clearly, figuratively, emotionally, inspiration for their work, sense of humour, observation. A teacher who possesses these qualities will be able to become not only a good pedagogue able to transfer knowledge well, but also a good educator, example, friend, comrade [22].

In recent pedagogical publications such Ukrainian scientists as V. Andrushchenko, S. Honcharenko, I. Bekh, N. Kuzmina, I. Ziaziun, V. Kremen, V. Kusherets, O. Savchenko, O. Serdiuk, A. Markova, S. Kondratieva, V. Kan-Kalyk, L. Mitina and others have addressed the problem of forming the personality of a modern pedagogue.

A prominent Ukrainian pedagogue, doctor of pedagogical sciences, professor, academician of the National Academy of Pedagogical Sciences of Ukraine, I. Ziaziun argues that personality is a form of human psyche, capable of assuming self-development, self-determination, conscious substantive activity and self-regulation, has a unique inner world [24].

Researchers emphasise that a modern pedagogue must be, above all, a morally perfect, widely erudite, highly cultured person. They define the vocational-pedagogical orientation as a generalising property of a pedagogue's personality – a set of psychological attitudes to work with students, professionally oriented motives and abilities, professional interests and personal qualities, including professional self-awareness. The vocational-pedagogical orientation determines the attitude to pedagogical work, the style of pedagogical communication.

Along with the vocational-pedagogical orientation, a fundamental component of the pedagogue's personality and the most important factor in mastering the profession and pedagogical skills are professionally significant personal qualities.

Professionally significant personal qualities of a pedagogue are the characteristics of mental, emotional, volitional and moral aspects of that affect the productivity (success) of vocational-pedagogical activities and determine its individual style. The most important personal traits for a modern pedagogue are a high general and professional culture, intelligence, moral purity and civic responsibility, as well as emotional resilience, observation, creative imagination, kindness, generosity, justice, well-organised activities.

I. Ziaziun has pointed out that the future pedagogue needs to work on such a synthesis of qualities and personality traits that will allow without undue emotional stress to carry out their professional activities: pedagogical optimism, self-confidence as a pedagogue, no fear of children, self-control, no emotional tension, volitional qualities (purposefulness, self-control, determination) [24].

Becoming a teacher is, first of all, the formation of a person and only then the formation of a professional worker with special knowledge and skills in a particular field of pedagogy. There is no doubt that the success of vocational training depends on professionally significant personal qualities, and their insufficient development in a certain student group is the reason of insufficient professional success.

In his work “Pedagogical Activities” M. Yevtukh distinguishes more than 50 personal characteristics of the teacher (from professionally significant to personal characteristics) [20]: politeness, reflection, insistence, vulnerability, education, attentiveness, patience, self-control, behavioural flexibility, humanity, efficiency, disciplined manner, kindness, honesty, sincerity, collectivism, political consciousness, observation, persistence, criticality, logic, love for kids, responsibility, orderliness, decency, patriotism, justice, pedagogical erudition, prudence, adherence to principles, independence, self-criticism, modesty, savvy, courage, striving for self-improvement, tact, self-esteem, sensitivity, emotionality.

This general list of characteristics is a psychological portrait of an ideal teacher, where the core is the personal qualities and orientation, the level of claims, self-esteem and the image of the ego.

These personal qualities are supplemented by attraction (social attitude to respect for people), an ability to meet the needs of students (susceptibility to them), an ability to reflect (self-analysis of taken steps), creativity (an ability to produce), extroversion (openness to communication with people), emotional resilience, optimism, an ability to dialogic interpretation of teaching and education, developed professional-pedagogical thinking, an ability to provide personal colour of teaching, an ability to set positive reinforcement for students’ self-education primarily by personal example, easy, informal, warm communication with learners or students, personal independence of the teacher, a pedagogical tact.

Emphasis is placed on the importance of the teacher’s pedagogical culture, which is a set of high levels of development and implementation of the essential personal strengths of the teacher, his / her abilities and capabilities. Pedagogical culture integrates personal and professional qualities of the teacher, pedagogical erudition and competence.

Summarising the content of the teacher’s orientation, we can distinguish the main qualities of his / her personality: high civic activity, social responsibility; love for kids, the need and ability to give them your heart; intelligence, moral culture, desire and ability to work together with

others; high professionalism, innovative style of scientific and pedagogical thinking, readiness to create new values and make creative decisions, individual style of pedagogical activity; the need for constant self-education and readiness for self-improvement; physical and mental health, vocational competence.

As it is known, social needs are the basic psychological needs of the personality. A student's self-development is an internal process of the personality, but the social environment with which the subject interacts is a key factor that can both contribute to the formation of positive motivation, and be the reason for its reduction. In the process of stimulating motivation for vocational personality self-development, attention should be paid to meeting the needs of future teachers for communication, the need for leadership, the need for creative, intellectual social environment that will have a developmental and stimulating impact on future foreign language teachers. Teachers are key actors in the environment which influence the social sphere of students.

The teacher's personality in the system of development of students' moral relations and values acts as a knowledge holder of certain social experience. Participating with the teacher in educational activities, students fall into a certain value coordinate system, they, in fact, are forced to learn the value system of the teacher, as in itself the social role of the teacher gives the holder authority.

Teachers, who confirm their own views and beliefs by personal examples, enjoy undeniable authority. They are followed as examples, they are quoted and they are talked about. In this regard, the importance of the personal example of the teacher is relevant. Students highly value such teachers' qualities as friendliness, sense of tact, broad outlook, deep knowledge and enthusiasm for the subject, interest in the students' personalities, respect, tolerance, understanding, sociability and justice. Thus, in order to increase the future agrarians' motivation for vocational personality self-development, teachers must work on development of their personal qualities and vocational competence. Only a teacher, who is

personally engaged in self-development and demonstrates positive results of work to students, can motivate them to be engaged in self-development.

A pedagogue's vocational personality self-development is primarily associated with a qualitative change in the personal and professional potential: expanding consciousness and self-awareness, discovering the real essences, acquiring vocational personality valuable meanings and goals of existence, individual way of self-realisation. Only such person and the results of his / her professional growth can educate a new generation of agrarians with an active life position.

The organisation of the educational process is currently facing the task to surround future specialists with bright personalities and competent professionals. All this can be achieved through acquaintance with innovative teachers or advanced pedagogical experience, solving pedagogical situations, discussion of authentic videos on the subject of vocational personality self-development.

2.2 Vocational Pedagogical Competence

Current researches have outlined a set of personal, professionally significant qualities that can be attributed to the normative psychological portrait of a modern pedagogue: moral culture, professionalism, love for people, intelligence, innovative style, reflective thinking, readiness to make responsible decisions, individual style of work; self-education and self-development skills, high status of mental health, professional creativity, etc. Usually the requirements for professionalism and personality of the pedagogue are formulated in the form of a professiogram.

Professiogram is an ideal model of a pedagogue. This is a sample, a standard, which presents the basic personality traits that a teacher should have; knowledge, skills, abilities to perform the functions of a teacher. The teacher's professional profile reveals itself as a document that gives a complete qualification description of the teacher from the standpoint of the

requirements for his / her knowledge, skills and abilities, personality, capacities, psychophysiological capabilities and level of training. Researchers emphasise that the professiogram is the basis of the "professiographic method of studying a personality, which compares the pedagogue's knowledge, skills and abilities with those that he could have according to the ideal model" [20, p. 432].

Thus, work with a professional profile is one of the stimuli for further vocational growth and personality self-development of the teacher. Let us consider an example of the universal professiogram of the teacher, which has been offered by Z. Kurliand, R. Khmeliuk, A. Semenova, I. Bartienieva, I. Bohdanova (Table 2.1) [33].

Table 2.1

Universal Professiogram of the Teacher

<table>
<tr><td colspan="2">Personal qualities:</td></tr>
<tr><td>Public orientation:
scientific worldview, needs of an advanced person, civic maturity and activity, awareness of the world events of and local life, universal moral traits and qualities, aspiration for professional heights, general erudition, literacy.</td><td>Vocational-pedagogical orientation:
competence, passion for the profession, high vocational efficiency, love for people and humane treatment of them, the ability to conduct psychological-pedagogical observations, requirements for teachers and students, persistence, purposefulness, justice, tact, endurance, patience, self-control, pedagogical tact, sensitivity, sincerity, self-criticism, modesty, self-esteem, ingenuity, firmness and consistency in words and actions, pedagogical imagination, optimism, communicativeness, expressive language, composure, accuracy and tidiness.</td></tr>
<tr><td colspan="2">Requirements for psychological-pedagogical training:</td></tr>
<tr><td colspan="2">Knowledge:
basics of methodology, psychological-pedagogical, anatomical-physiological-hygienic, theories and methods of education, the content of the subject and methods of its teaching, individual psychological characteristics of the person according to different age groups, methods of individual work and work with youth groups, content and methods of working with parents and the public, politics, history, local lore, literature and art, morals, ethics, aesthetics, religion, law, technology and culture.</td></tr>
</table>

Continuation of Table 2.1

Skills and abilities:	
Constructive: to plan educational and pedagogical work; to select, analyse and synthesise educational programme materials, carry out didactic processing of complex materials; to build the organisational-pedagogical and logical-pedagogical structure of the lesson creatively and rationally; to plan a system of promising lines in the development of the individual and team; to develop an individualized education programme.	*Organisational:* identify and organise the group's assets, manage them in different conditions; to organize various types of students' collective and individual activities, to develop their activity; to exercise control and assistance in students' mental development; to exercise control and assistance in fulfilling the assignments by students; to carry out pedagogical management of student organisations; to organise the work with parents and the community.
Communication: to establish pedagogically feasible relations with students, parents, teachers; to regulate intra-collective and inter-collective relations; to find the necessary forms of communication with students and their parents; to predict the impact of a pedagogical action on relations with students.	*Research:* to study individual characteristics of students and a team; critically assess the experience, the results of activities; consciously improve pedagogical skills, self-education and self-development; to use psychological-pedagogical researches, the advanced pedagogical experience at work; to predict the use of certain tools and methods.
Applied: creative: to draw, sing, dance, play a musical instrument, read clearly; mass entertainment; sport and tourism; the use of technical teaching aids.	*Pedagogical technique* is the ability to organise oneself, increase inner arousal and inhibition, and motivate, inspire, stimulate, and restrain students; to own the culture and technique of speech, mimic, gestures; facial expression, voice, intonation.

Source: Compiled by the authors on the basis of the processed sources [33; 54].

According to O. Homoniuk, the professiogram of the teacher reflects the basic qualities of personality that a teacher should have and knowledge, skills, abilities to perform the functions of a teacher. On the basis of the competence approach, the researcher draws attention to the fact that when building a professiogram, three main requirements must be taken into account: vocational competence, humanistic orientation and interpersonal relations [14].

Recently, a large number of publications (O. Markozova, S. Nekrasova, N. Nychkalo, L. Pavlenko, V. Pereverzieva, L. Petrenko, E. Pekhota, V. Svystun, N. Serhienko, S. Sysoieva, I. Tryhub, P. Kharchenko, H. Yatsenko and others) devoted to the study of various aspects of teacher professionalism, particularly through the concept of the vocational competence, have appeared. Researchers' interest in the issues of the structure of the vocational competence, especially, its personal component, is quite justified.

In psychological-pedagogical researches, the concept of "competence" appeared not so long ago. In the late 1960s and early 1970s, a new trend emerged in Western literature and in the late 1980s in the Ukrainian literature, a competency-based approach to education.

Scottish scholar John Raven defines competence as the specific ability needed to perform a specific action efficiently in a specific subject area and includes specialised knowledge, special subject skills, ways of thinking, and an understanding of responsibility for one's actions. The researcher not only provides a detailed definition of the competence, but also sets out his ideas about the nature of this concept, distinguishes between types of competencies and classifies them. He distinguishes 39 types of competencies, which he identifies with "motivated abilities". The types classified by J. Raven include: the ability to self-education, self-control, critical thinking, the desire to solve complex problems, self-confidence, perseverance, the ability to work together, personal responsibility and others [15].

In 1990 N. Kuzmina and L. Petrovska defined competence as a property of the individual". Now the issue of competence is the subject of researches conducted by L. Aleksieieva, A. Markova, L. Mitina. In their works the concept "competence" is inextricably intertwined with the concept "professionalism". A detailed analysis of these researches was carried out by M. Necheporenko [44; 45].

The introduction of the concept "vocational competence" has been caused by to the breadth of its content, the integrative characteristics, which include such concepts as "professionalism", "qualification", "competencies", "vocational skills" and others.

Z. Kurliand emphasizes that the vocational competence is an integral characteristic of business and personal qualities of a specialist, which reflects not only the level of knowledge, skills, professional vocational experience sufficient for professional activities, but also the socio-moral position of the future specialist [33].

N. Nychkalo interprets the vocational competence of a teacher as a complex set that includes professional knowledge, skills, readiness for work, as well as a number of professionally important personal qualities such as creativity, mobility, sociability, tolerance, balance, sensitivity, friendliness, desire for self-understanding, self-development and self-realisation, self-reflection, etc. [46] A thorough analysis of the essence of a teacher's vocational competence has been presented in the work of O. Piekhota. The author interprets the concept "vocational competence of a teacher" as the integration of the teacher's appropriate level of professional knowledge, skills and abilities, his personal qualities which are manifested as a result of activities (the level of education and training of students) [61].

Having analysed different approaches defining the concept of the vocational competence (O. Akimova, V. Haluziak, I. Ziaziun, O. Polozenko, L. Tyshakova, V. Frytsiuk, etc.), it should be noted that most authors consider the vocational competence as a set of integration characteristics of a pedagogue which help him / her in solving professional

and pedagogical tasks. A pedagogue's vocational competence is the unity of theoretical and practical readiness of a teacher to carry out pedagogical activities and characterises his / her professionalism, it is the relationship of knowledge, skills, abilities, personal qualities and experience. A component content of the vocational pedagogical competence evokes lively discussions in the scientific community (L. Vashchenko, V. Vvedenskyi, M. Zhaldak, I. Ziaziun, M. Kornilova, S. Ivanova, O. Lokshyna, N. Nychkalo, O. Ovcharuk, O. Pometun, A. Khutorskoi, O. Savchenko, S. Sysoieva, O. Semenoh).

Detailed characteristics of the key components of the vocational pedagogical competence are shown in Table 2.2.

Table 2.2

Characteristics of Key components of the Vocational Competence

Component	Characteristics
Information competency	involves the use of information technologies, the ability to work with different types of information. Among them there are the ability and skills to work with printed sources, the ability to obtain information from other sources, to process it in accordance with the goals and tasks of the pedagogical process.
Communication competency	the ability to communicate efficiently, be clear, communication without restrictions. These skills help to understand other people (students, teachers, parents).
Productivity competency	the ability to work, get results, make decisions and be responsible for them. Most scholars place productivity competency at the forefront of a teacher's key competencies.
Autonomisation of competency	the ability for self-development, creativity, self-determination, self-education, competitiveness. Finally, teachers, first of all, discover themselves, they learn lifelong.
Moral competency	the desire, ability and need to live due to traditional moral norms.
Psychological competency	the ability to use psychological teaching tools while organising interaction in educational activities.
Subject-matter competency	mastery of certain teaching tools in the field of the educational process (specialty). It is a set of skills and abilities needed to stimulate the activity of both an individual student and the team as a whole. It includes the ability to choose a proper style and tone in communication,

Continuation of Table 2.2

	to control their attention, the pace of activity.
Social competency	the ability to live and work with others.
Mathematical competency	the ability to work with numbers, numerical data.
Personal qualities of a teacher	friendliness, sympathy, self-control, sophistication, tolerance, reflection, humanity.

Source: Compiled by the authors on the basis of the processed sources [41; 54; 105].

In the vocational competence of a pedagogue we can distinguish the following components:

✓***special component*** means mastery of a vocational activity at a high level, the ability to design their further professional development;

✓***social component*** is related to acquiring possession of joint (group, cooperative) vocational activities, cooperation, as well as accepted in this profession methods of business communication, social responsibility for the results of their work;

✓***personal component*** reveals itself as acquiring the techniques for personal self-expression and self-development, means for counteracting professional personality deformities; mastery of techniques for attaining self-realization and development of individuality within the profession, readiness for career growth, the ability to organise their work rationally and without overload [15, 20].

The development of the vocational competence of a teacher is the development of creative individuality, the formation of receptivity to pedagogical innovations, the ability to adapt to changes in the pedagogical environment. Socio-economic and moral development of the society directly depends on the professional level of the teacher.

Changes in the modern education system determine the need for professional development and professionalism of teachers – their professional competence. The main goal of modern education is to meet the current and future needs of the personality, society and state, to train a well-rounded personality of a citizen, capable of social adaptation in the

society, employment, self-education and self-improvement, and a free thinker who predicts the results of his / her activities and models the educational process. The pedagogue acts as the guarantor of achieving these goals. That is why now the demand for a qualified, creative, competitive personality of a teacher capable of educating young people in a modern, dynamically changing world has increased sharply.

Taking into consideration modern requirements, we can identify the main ways of developing the vocational competence of teachers:

1. Work in methodological associations, creative groups;
2. Research, experimental activities;
3. Innovative activity, development of new pedagogical technologies;
4. Various forms of pedagogical support;
5. Active participation in pedagogical competitions, master classes, forums and festivals;
6. Generalisation of the pedagogical experience;
7. Use of ICT.

However, none of these methods will be effective if a pedagogue understands the need to improve the vocational competence. So, we see the need to motivate and create favourable conditions for pedagogical growth. It is necessary to create the conditions in which pedagogues are aware of the need to increase their professional skills and improve their personalities. The analysis of one's own personality activates the vocational self-development of a pedagogue, as a result of which the skills of research activity are developed, and then integrated into pedagogical activity. Therefore, it is advisable to include the auto-psychological competence in the component structure of a pedagogue's vocational competence.

The auto-psychological competence is one of the main psychological and acmeological conditions for activating a person's individual potential. It involves a person's awareness of his / her own individual and personal characteristics, as well as understanding how to act on the basis of self-knowledge in different life situations. A high level of the auto-

psychological competence implies the possibility of effective self-management based on the mastery of internal resources.

The auto-psychological competence in line with the acmeological approach defines the phenomenon as "...a personality's readiness and ability to perform purposeful mental work changing personality traits and behavioural characteristics" [70]. The auto-psychological competence is significant for implementation of progressive vocational and personality development. The qualities of self-analysis, the adequacy of self-assessment, the level of self-regulation and self-efficacy depend on its level, and as we know, it is effective reflection that is the key to high efficiency of any activity.

2.3 Paradigm of a Future Agrarian's Vocational Development: From Adaptation, Stagnation to Self-Development

Development of the society in the third millennium was marked by the intensification of globalisation, international cooperation, rapid development of science, the spread of information-communication technologies, the establishment of humanistic ideals, the development of individuality and self-realisation as values. The current stage of the development of the educational paradigm in Ukraine has been determined by the influence of these trends and is characterised by the introduction of necessary qualitative changes, improving the process of a future agrarian's vocational training, bringing national requirements and legislation in line with European standards. Moreover, the search for new ways to implement the concept of lifelong learning, effective ways to organise the educational process, the introduction of innovative technologies, academic mobility and international cooperation to form a readiness of agrarians to systematically improve themselves as individuals and their vocational activities. According to the National Institute for Strategic Studies, "the system of knowledge generation and transfer has changed dramatically in recent decades, and their volume has increased many times over. Today it

is impossible to prepare a person for vocational activity for all life at once, even in 5 or 6 years. Currently, about 5% of theoretical and 20% of professional knowledge is updated annually [10].

The Council Resolution on Lifelong Learning [66] emphasizes that such education should start from pre-school and last until post-retirement age, and include the full range of non-formal and informal learning. Modern researcher V. Frytsiuk considers lifelong learning as a necessary prerequisite for achieving human success in life, and emphasises that "people who are not focused on continuous self-development through learning, eventually lose the ability to act effectively. At the same time, if a person devotes his / her free time to self-education and self-development, to increase educational capital, persistently overcoming all obstacles in his / her path, he / she will surely achieve success in life. Therefore, lifelong learning is a necessary condition for human self-realisation on the way to success [90]. It should be noted that modern students of the "information age" require changes in methods, teaching forms and tools, preferring interactive learning in collaboration. Modern youth is ready to work with educational resources on the Internet and create their own information product. The objective educational reality today is the process of E-learning, which involves the use of Internet technologies, electronic libraries, educational and methodical multimedia materials, massive open online courses (MOOCs), virtual laboratories and workshops, etc. [10]. According to O. Liskovych [8], new teaching forms are already functioning today, such as asynchronous learning (learning regardless of time and place). Thus, in the society of continuing education, agrarians will be involved in learning and continuous updating of knowledge.

The competence-based approach remains relevant in the international dimension and becomes one of the leading in the national educational space [46].

Conducting an analytical research of the educational reforms, including the new Law of Ukraine "On Education" (dated 05.09.2017, № 2145, VIII), experts of the Social Communications Research Centre of

the Vernadskyi National Library of Ukraine (VNLU) have noted that the main purpose of training will become not obtaining knowledge by students, but mastery of a certain set of competencies and cross-cutting skills. At the legislative level, competence is interpreted as "a dynamic combination of knowledge, skills, abilities, ways of thinking, views, values, and other personal qualities which determine a person's ability to successfully socialise, conduct professional and / or further educational activities" [67; 68; 69]. In our research, we will adhere to this definition of competence. It is also important for our research to consider the fact reflected in the law that the teacher's task is not to transmit information, but comprehensively promote the development of the student's personality, direct the vector of scientific knowledge, provide methodological support for learning, motivation for self-development, creating an environment of creative self-movement. In such conditions new requirements for professionalism, personality and vocational training of future agrarians are specified.

The development of a future agrarian's vocational competence is a dynamic process that involves the assimilation and modernisation of professional experience, mastery of innovative skills and self-development of professionally significant personal qualities.

This process requires daily efforts from an agrarian, but without development there is no movement, it becomes impossible to perform professional tasks, and even more an individual's self-realisation. Scientists have noted that agrarians have three opportunities or three ways to determine the prospects of their development: the path of adaptation, the path of self-development and the path of stagnation – the collapse of activity, degradation of the personality (Fig. 2.1).

Adaptation makes it possible to acclimate yourself to all the requirements of the education system, to master all activities, to master the role positions. Self-development allows you to constantly improve yourself, change, and ultimately fully realise yourself as a professional. Stagnation occurs when an agrarian stops his / her development, lives

exploiting stereotypes, old baggage. As a result, professional activity decreases, insensitivity to the new increases, and consequently, even what once allowed being at the level of requirements is lost.

Fig. 2.1 Possible Vectors of Vocational Personality Self-Development
Source: Compiled by the authors on the basis of the processed sources [12].

External vocational training sets the content, forms, schemes of professional reflection, and internal movement provides energy, realisation of personal meaning of vocational self-development. Vocational activity is a means of personality self-realisation. Professionalization affects the individual, can stimulate it or, conversely, destroy it, thus acting as a factor in personality self-development. In the perspective of modern research of the agrarian as a subject of vocational activity, great importance is attached to personal potential, which allows us to talk about the continuity of future agrarians' vocational personality self-development as a specific internal support, enables determining productive conditions for the implementation of pedagogical activities in an entropic environment.

Personal potential is viewed as an integral formation that includes a high level of consciousness of life and temporal perspective; productive self-realisation and self-determination.

Many scientists are looking for an answer to the question "How can modern pedagogues keep up to date? How can they get ready to perform so many tasks which the society sets for a teacher?" Some argue that the secret of success lies in knowing the subject you teach, others argue that the key to professionalism is knowledge of methods, pedagogy and psychology. However, in M. Morozova's opinion, the subject of everyone's concern is to be a real teacher, related to the ability to align their behaviour and actions with life of the best community members, to

correct and hone their character, to develop the habit of being within the behavioural norms in the society and everyday life [40].

Indeed, there is a different understanding of the teacher's role: some see him / her as a simple teacher of a particular subject, others – a pedagogue, educator and mentor of young people, a person who contributes to the formation of the student's personality. It is no secret that pedagogical activity places high demands on the personality and professionalism of the pedagogue, so it is obvious that a person who wants to succeed in this profession must be engaged in development. Without the desire for self-improvement, personal growth, successful professional activity is impossible.

Nowadays technological and informational changes in the world are happening so rapidly that good education can no longer guarantee the efficiency of further work without systematic and continuous personal improvement and development. This is especially true of the teaching profession, because it faces the task of forming an independent, responsible and socially mobile personality, capable of successful socialisation in the society and active adaptation in the labour market, which determines the need to train agrarians capable of personal self-determination and self-development, continuous improvement of their level of the vocational competence.

CONCLUSIONS

Modern educational technologies are focused not only on forming future specialists' knowledge, but also enable the development of social skills necessary for life and career.

A constantly evolving society needs educated, moral, creative professionals who can make responsible decisions in situations which require choices, predict their possible consequences, are capable of cooperation, constructive and ready for continuous professional growth, social and professional mobility.

Current challenges in the way of pedagogical activities indicate that the education system needs teachers with an active life and professional position.

The analysis of the state of the educational process, scientific works on the researched problem has testified to the objective need to increase the efficiency of the process of vocational personality self-development of both university teachers and students who choose teaching at higher education institutions.

Higher education teachers' vocational personality self-development and formation of their readiness for training future agrarians have been chosen as key concepts of our research, which we consider as a dynamic integrative process associated with changes in personal and professional characteristics, providing a new level of needs, readiness and opportunities for self-development and self-realisation of a pedagogue and a future agrarian.

CHAPTER 3
THE PHENOMENON OF FUTURE AGRARIANS' VOCATIONAL PERSONALITY SELF-DEVELOPMENT

The chapter reveals the essence of the phenomenon of vocational personality self-development, the evolution of the theory of personality self-development and future agrarians' vocational personality self-development has been discussed

3.1 Philosophical Reflection and Scientific Views on the Concept of Personality Self-Development

At the present stage of the development of the higher education system our society needs a new type of workers – educated, competent, creative persons who have the ability to respond quickly and efficiently to changes in the professional environment and learn lifelong. The essence of specialists' training is to form their system of knowledge and personality qualities necessary to perform various functions of the vocational activity. Nevertheless, vocational development (including self-development) is closely related to personality development. In this context, the issue of creating conditions for vocational self-development of future professionals is urgent. Training and self-improvement of a true professional – a master of his / her craft lasts lifelong. It is not limited to the scope of the education institution or held position. Everyday realities and challenges of future changes put us in need of anticipation and appropriate training. Self-development is determined by socio-economic factors,

psychophysiological human potential, purposefulness and, especially, the nature and content of the work. The determining forces of self-development are professional, labour, material, social status and moral needs. The content of self-development is a holistic set of processes and means of the individual progress, the satisfaction of cognitive and spiritual needs, the discovery and improvement of natural abilities and skills.

Vocational training is carried out according to various organisational forms, models, systems and programmes, most of which can be classified by duration, number of participants and peculiarities of their interaction, connection with practical activities. Analysis of the pedagogical practice has proved that the inherited information and dogmatic training exacerbates the contradictions between the requirements for specialists in modern conditions, and the level of their readiness for performing vocational activities.

Having analysed the current trends in the educational paradigm, the results of the researches on a pedagogue's vocational competence we determined the essence of mechanisms which promote the holistic development of the individual, ensure its purposeful self-improvement starting since university years, and continue to form a research position in vocational activities.

A typical feature of modern society is its person-centred approach, according to which the most important indicator of progress is the personality development of the individual, his / her abilities, thinking, satisfaction of cognitive needs and requirements. Therefore, future professionals must be oriented towards constantly updating their knowledge, professional skills and abilities, enrich the experience of cognitive and practical activities, supported by appropriate value orientations.

Vocational development involves growth, formation of professionally significant personal qualities and abilities, knowledge and skills, active and qualitative transformation of the individual's inner world, which leads to a fundamental restructuring of the lifestyle, including creative self-

realisation in the profession.

Examining the essential characteristics of the concept "self-development", it is necessary to take into account the ambiguous content of the related concept "development". There is no doubt that human development is a continuous process of quantitative and qualitative changes that permeates all human life. In the scientific literature we can find different interpretations of the concept "development". In our opinion, the belief of the representatives of idealist philosophy is rather interesting. They interpret it as an uncontrolled, spontaneous process occurring regardless of the conditions in which a person appears and the level of development is determined at birth. According to the scientists, the personality development is influenced by four factors – heredity, environment, education and activity. Of course, heredity affects human development, but each individual complements the inherent qualities of nature, while realising the potential through self-development and self-improvement. In the interpretation of philosophical dictionaries [61] development is an irreversible, natural, purposeful, qualitative change of material and ideal objects. In general, the scientists agree that human development is a continuous process, but it is not limited to quantitative changes. Although, according to M. Kyrychenko, quantitative changes play not the least role, they cause the emergence of new personality traits and, significantly, the disappearance of old ones [26]. Comparing the concepts of "development" and "self-development", it is safe to say that development is based on achieving the goals set by another person, and the process of self-development is carried out in accordance with the plans and goals of the personality. The source of self-development is a person's need for new achievements, the desire for success, improvement, active life position, positive thinking, faith in abilities, understanding the meaning of life.

The specificity of self-education as a factor of personality self-development confirms that among all other factors of self-education it is based on individual characteristics, personality needs and inclinations. Due

to this, a person is able to independently identify their own dominant traits, which in the future may be decisive in choosing a life path, to ensure self-development of physical, intellectual and emotional-volitional qualities. The emergence of a conscious desire for self-development is a consequence of previous external development, i. e. the influence of the society on the individual through the subjective activities of educators, parents, and teachers. The personality, who is not only the object, but also the subject of formation, focuses on the fact that external pedagogical influences give rise to an understanding of the differences between achieved and desired goals.

Thus, development and self-development while forming the personality shape a single process. Without a clear understanding of the concept “self-development” and its structure, it is impossible to solve the problems associated with its implementation. Revealing the essence of the concepts “vocational self-development” of a future specialist, we distinguish the philosophical, psychological and pedagogical levels of the research. “Self” (“autos”) is synonymous with the word “ego”. It is safe to say that self-development is a complex system of continuous self-improvement. The basis of self-development is an activity, a system of exercises. The concept "self-development" is in the interdisciplinary context of such sciences as philosophy, sociology, psychology, pedagogy. Various interpretations of the concept of self-development have been proposed in the encyclopaedic literature. On one hand, it is interpreted as the mental or physical development of a person, which he / she achieves attending extra classes and doing exercises [26]; or independent development, without influence of any external forces [14; 24; 28], on the other hand, self-development is defined as self-movement, which is characterised by the transition to a higher level of organisation [43].

Modern humanistic priorities of higher pedagogical education require the development of the subjectivity of future pedagogues, their independence, creative activity, strengthening responsibility for their own vocational development.

The basic thesis of most researches is the idea of determining the development of personality by activity, and therefore a person is considered from the standpoint of its relevance to the profession and successful activities in it. Personality development occurs in the process of successfully mastering vocational activities that is significant for the subject. For a person, the profession is a source of existence and a means of personal self-realisation. Professionalisation affects personalities, can stimulate or destroy them, thus acting as a factor in personality self-development. In vocational activities it is almost impossible to separate the personal beginning from the professional. In this regard, the content of vocational activities coincides as much as possible with the realisation of main human needs – to be a person, the need for self-fulfilment, self-realisation.

Thus, the process of training future pedagogues should be aimed at developing readiness for such activities, which is based on the personality's need for lifelong learning and improvement. The solution to this problem is a humanistic paradigm, student-centred teaching and learning aimed at the creative development of the individual for self-realisation in vocational activities.

In the perspective of recent researches of a pedagogue as a subject of vocational activities, great importance is attached to the personal potential. The modern society needs a specialist who has not only a functional readiness for professional activity, but also one who understands the role of self-improvement processes, lifelong learning. At the same time, the overarching idea of continuous pedagogical education is readiness for vocational personality self-development. Professional and personal growth and self-improvement during the whole period of the pedagogical activity remains an indispensable condition for a pedagogue's successful activity.

Now it is high time to consider the phenomenon of vocational personality self-development and conduct a more detailed analysis of this concept (Fig. 3.1).

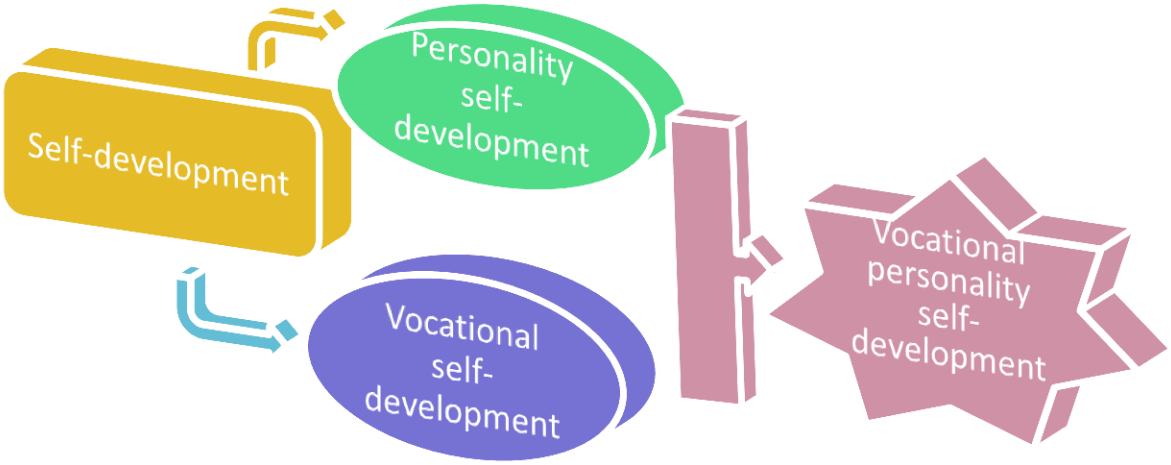

Fig. 3.1 Sequence Analysis of Basic Concepts

Source: Compiled by the authors on the basis of the processed sources [38; 42; 48].

The concept of a pedagogue's vocational personality self-development lies in the interdisciplinary context of such sciences as philosophy, psychology, pedagogy. The original concept is the phenomenon of "self-development". Researches of the problem of self-development have attracted the attention of many modern scientists and have been widely studied in the works of L. Vyhotskyi, O. Leontiev, S. Rubinstein, A. Maslow, C. Rogers, V. Slobodchykov, H. Zuckerman, B. Masterov, P. Kapterev, L. Kulikova, V. Maralov, T. Tykhonova, L. Ziaziun, H. Selevko, V. Andrieieva, L. Mitina, K. Albukhanova-Slavskaia, I. Bekh, S. Kuzikova. And although the problems of personality self-development, vocational self-development are extremely relevant in modern conditions, the way to actualise personality self-development in education has got a long history, dating back to ancient civilizations. Focusing on the student's self-development also permeated the foundations of ancient Greece and the East. Personality self-development did not lose relevance in the Renaissance, Reformation, as never before this process is significant at the present stage of the society's development.

If we talk about the concept of personality development, its origins go back to the philosophy of antiquity. The idea of human development in the

learning process belongs to Confucius. This is evidenced by his words: "Learning without thinking is useless. Thinking without learning is dangerous" or such guidelines as "If you are interested in self-improvement, give this a shot!" [70, p. 86], and at the same time constantly engage in self-learning, self-education, self-development. The words "I searched myself" belong to Heraclitus [70, p. 34], the need to address the inner world "Nowhere can man find a quieter or more untroubled retreat than in his own soul" was expressed by Marcus Aurelius [1, p. 18] and Plato, "Know Thyself" – Socrates. Democritus argued that the first priority should not be "a lot of knowledge", but development. In the works of Plato, the beginning of self-realisation of the individual should be virtue, which is, above all, reveals itself in the ability to direct your mind from the transitional and low to stable and high. This virtue itself is an indicator of the full development of a personality, and is seen clearly in the teacher's motto of Plato and Socrates – "Know Thyself", presenting the idea of personality self-development. Thus, the main educational goal, the philosophers saw in the moral self-improvement of man, in being exempted from all bad external influences and in creating a harmonious unity of life needs and abilities. The development of the latter, which is caused, according to Socrates, by interest in knowledge, leads to further self-actualisation of the personality.

The medieval period of European history was marked by the emergence and spread of Christianity, which gave an additional boost to the development of the practice of personality self-development. Traditionally, personality self-development in Christianity is built up in the form of asceticism. The beginning of human self-improvement in Orthodoxy is traditionally considered to be repentance as a result of free and conscious self-critical attitude, self-esteem, based on the criteria of evaluation enshrined in the moral norm. At this stage the function of self-knowledge is performed, as well as the axiological function [35, p. 190].

The problem of self-development is gaining a new interpretation with the opening of the first medieval universities in Europe. At that time the

idea of self-development was assigned to the formula “learning to learn” [90, p.197].

The representative of the medieval epoch, Aurelius Augustinus, argued that the existence of faith without knowledge and knowledge without faith is impossible, they complement each other. He emphasised that person needs to focus on themselves, and then they will find the truth.

The epoch of the Renaissance is characterised by the return to the ideals of antiquity, a development of humanism, which is directed to dignity and respect for intelligence of a person, the right to be happy on earth, free to show the natural human feelings and abilities.

Humanists preached the possibility of self-perfection through education to culture. In the same period, the idea was affirmed that after the development and thorough perfection of the lifestyle, the personality changes its attitudes. Human beings are creators of their happiness and themselves, this is they differs from other beings.

According to J. Locke, a thinker of the New Age, a person learns the world through feelings and reflections. He created his doctrine of reflection – the ability of the human mind to analyse its own thoughts and experiences, the essence of which reveals cognition as a process of filling a person with ideas for further development.

Another scientist and philosopher Rene Descartes, having mastered many sciences, realised that many studies about the world contradict each other, so Descartes claimed “My third maxim was to try always to master myself rather than fortune and change my desires rather than changing how things stand in the world”, so he set himself the task of “master yourself” and implemented it adhering to the following points:

1) refusal to search for the only true doctrine, refusal to follow the thoughts of others and setting a task to find and build the basic principles of your thinking and behaviour;

2) accumulation of your own life experience;

3) making a decision to build your life on the basis of your own thoughts about the experience you have gained;

4) formulation of their principles of thinking and behaviour;

5) a regular move on the planned pat [90].

Descartes' works had a huge impact on the development of modern philosophy and science. However, Descartes' task to master himself was not widespread among educated people.

The turbulent events of social life, scientific discoveries, radical changes in the people' worldview and perception affected the society's worldview. During the Enlightenment views (J.-J. Rousseau, J. Herder, C. Helvetius) on self-development as an expression of self-education were well grounded. In classical German philosophy (I. Kant, G. Hegel, J. Fichte, F. Schelling) anthropological and humanistic ideas stimulated the understanding of the problems of self-development in the pedagogical direction (a move from the subjective spirit to the objective involves education, which is carried out according to the scheme: consciousness – the focus on morality, self-awareness – the focus on yourself, intelligence – freedom from yourself.

I. Kant, like other thinkers of that period, considered a man as a subject of behaviour in the society and self-improvement. I. Kant emphasised that the truth is in man himself, in his self-perception, and not in the external world. Before understanding the world around him, a person needs to understand himself.

Viewing the concept of self-development, G. Hegel meant the passage of stages from the ability of man to know "himself" as a starting point of self-development to the embodiment of the formative force of the personality.

During the XVII–XIX centuries philosophical ideas in Western Europe developed under the influence of Protestantism and Rationalism, which greatly simplified the interpretation of the concept of self-development.

Self-educational practice in Protestantism is not aimed at educating a wide range of moral feelings, which are positively evaluated by Orthodox Christianity (friendship, even love, self-denial, nobility, especially

contempt for wealth, self-sacrifice, etc.), whose aspirations are the basis of self-development, it is focused on self-regulation, external compliance with certain virtues, vocational self-education [35, p. 195].

On the other hand, the socio-economic situation in Europe, especially since the XVIII century, had created special, unique conditions for spiritual life. During this period, particularly in the XIX century, the development of capitalism, rationalisation of life, intense social dynamics and competition in Western European countries caused and demanded activity, self-confidence and development of individual abilities. Under these conditions, individualistic strategies of self-education were worked out, which were implemented mainly in the models of professional self-education and self-education. In Western European culture, the concept of selfmademen (man who creates himself) appeared. It is a question of achieving the social status, material wealth and development of abilities. Therefore, the concept of selfmademen precisely showed what became targets for self-education [35, p. 196].

The views of foreign pedagogues of Western Europe of the XVIII–XIX centuries are fundamental for the process of self-development and self-knowledge of the personality. Well-known educators J. Pestalozzi and A. Diesterweg saw the main purpose of education in the harmonious development of the talents that man has by nature through amateur activities. It was A. Diesterweg who substantiated the position of didactics of developmental learning, which was based on the activity and students' awareness of the received information. In his opinion, education is only a tool for comprehensive development.

In European pedagogy one of the most influential concepts of personality self-development rightfully belongs to J. Pestalozzi. He considered the education of man, following J.-J. Rousseau, as the self-development of own forces, which are gifted by nature, and it is due to the natural need for their active development. The eye wants to see, the ear wants to hear, the foot wants to walk and the hand wants to grab. But also the heart wants to believe and love. The mind wants to think. In any

instinct of human nature there is a desire to get rid of the state of lifelessness and incompetence to become a developed force [36, p. 213].

The problem of conscious self-development of the personality is the object of philosophical reflection of L. Buieva, H. Hlezerman, L. Ihnatovskyi, S. Kovalov, L. Sokhan, O. Stepanchenko, V. Lozov and others. For example, V. Frytsiuk's research substantiates that self-development is one of the forms of movement of matter, which is realised in the activity of the subject, which is aimed at resolving internal contradictions of its existence in the world (natural and social environment). As a primary stage the self-development of any system is preceded by development caused mainly by external determinants. At the individual level, self-development takes two forms: unconscious, spontaneous (imitation, spontaneous adaptation, play), when the individual does not aim to change themselves and conscious (self-learning, self-education, self-creation and self-improvement), where the personality acts both as a subject of purposeful activity and an object that needs to be changed in this activity [90].

In dictionaries we can find such definitions of self-development: 1) mental or physical development of a person, which he achieves attending independent study courses and doing exercises; 2) the development of someone or something on their own, without influence, assistance of any external forces; 3) self-movement. In pedagogical research [5] self-development is a person's desire to identify, understand and improve his / her personal qualities. In the pedagogical activity this process is considered as formation and integration of personal, professional qualities and abilities, methodological, methodical, research knowledge and skills, but the main thing is active qualitative transformation of the teacher's internal world which actually leads to self-actualisation and realisation of creative potential [20; 36].

Beginning since the second half of the XIX century, V. Frytsiuk traces the researches of self-development covering many branches of humanities knowledge, which are transferred to the field of social psychology, social,

cultural and philosophical anthropology. There are areas and schools completely focused on the issues of self-development, such as personalism, existentialism (S. Kierkegaard, K. Jaspers, M. Heidegger, J.-P. Sartre). S. Kierkegaard emphasised that the first and only subject worthy of philosophy can only be man. Man can comprehend himself only through inner experience and self-absorption. In this way, he can go through three stages of self-knowledge and self-affirmation [90].

In the researches of O. Akimova and V. Haluziak the Russian pedagogy of the late XIX – early XX centuries has been analysed, and it has been proved that its basic concept developed the idea of the child as a whole person. K. Ushynskyi's anthropological views played a significant role in that process. Being a young professor at the Yaroslavl Demydiv Lyceum, K. Ushynskyi addressed his students in a lecture on law with the words that the most significant, most human need for man is the need for improvement, development [82].

The Soviet pedagogy did not share this rather stable anthropological position of the Russian pre-revolutionary pedagogy. The postulate substantiated on the basis of Marxist methodology was asserted: self-development is not a spontaneous activity of an individual, but the result of his successful upbringing and education (N. Krupska, A. Lunacharskyi, A. Pinkevych, M. Pistrak, A. Kalashnykov, A. Makarenko). This theoretical attitude was quite clear in the 60–80s of the XX century. (V. Sukhomlynskyi, A. Areta, A. Kochetov, L. Ruvinskyi).

In the works of European humanists of the XX century, self-development is seen as a two-way process in the interaction of the individual with the socio-cultural environment, social ideals should become an inner conviction based on personal enlightenment.

In the works of foreign psychologists, the theory of personality self-development has been presented in the concepts of S. Freud, A. Adler, C. Jung, P. Ranschburg, K. Popper, A. Maslow, E. Erikson, C. Rogers; self-development as a desire to find the purpose of their existence has been revealed in the concepts of V. Frankl and L. Hubbard; self-development as

a change of social attitudes and the construction of one's own life in the theories of E. Berne and M. Rokeach.

At the heart of the ideas of foreign researchers (A. Adler, A. Maslow, C. Rogers, V. Frankl, S. Freud, E. Fromm, E. Erikson, C. Jung) about man and his ability to change, develop, personal growth the postulate of constant change of his "ego" is laid down, the manifestations and sources of this phenomenon, prospects and barriers of personal growth have been studied.

Representatives of humanistic psychology of development (A. Maslow, G. Allport, C. Rogers) proceed from the idea that every person has a desire to become competent, holistic, complete – the tendency to self-actualisation, which is fundamental to man. Self-actualisation is the highest form of self-development. According to the author of the theory of self-actualisation A. Maslow, self-actualisation is a person's ability to become who he / she is able to become, i. e. a person must fulfil its mission – realise what is laid down in accordance with the higher needs: Truths, Beauties, Perfections.

In the XXI century, the problem of "self-development" attracts the attention of many scientists and is being widely researched. In the concept of S. Rubinstein, the problem of self-development is, primarily, the problem of determining the lifestyle. According to K. Abulkhanova-Slavskaia, the central point of personality self-development is self-determination, self-activity, a conscious desire to take a certain position, which is formed within the coordinates of the system of relations.

A. Bodalev, K. Abulkhanova-Slavskaia, tracing the self-development features of a personality as a subject of activity, emphasise the importance of vocational activity as an optimal condition for creative self-development. In other words, only meaningful activity can be the basis of self-development.

V. Slobodchykov and E. Isaiev define self-development as a fundamental human ability to become and be a real subject of life, to direct life towards practical transformation.

Considering the approaches to the definition of self-development, we would like to note that while researching this concept a number of authors focuses on its internal organisation (J. Comenius, J. Locke, J.-J. Rousseau, J. Pestalozzi, M. Kostohryzov, A. Viethov, V. Vierietiennikov, E. Kovalenko, L. Peterson, L. Kulikova). For example, M. Kostohryzov understands the phenomenon of self-development as necessarily an internal, motivational process aimed at achieving a specific goal, as conscious self-improvement. Internally organised processes occur in case of the prsonality's focus on self-development. Orientation is understood as a set of motives that affect human behaviour, regardless of the situation.

At the same time, self-development is considered as an externally organised process of personal and professional self-change, self-improvement, as a process or technology that includes a set of forms, methods and techniques.

According to V. Frytsiuk, personality self-development is a special type of creative activity of subject-subject orientation, aimed at intensifying and increasing the efficiency of "self" processes, among which self-knowledge, creative self-determination, self-management, creative self-realisation and self-improvement are system-forming ones. [90].

P. Kharchenko defines personal self-development as a conscious, purposeful and self-directed activity of the individual, the purpose of which is self-change in a positive direction, which provides personal growth, self-improvement [91].

M. Kyrychenko, analysing recent definitions of personality self-development, truly notes that the concept of self-development is in the interdisciplinary context of such sciences as philosophy, sociology, psychology, pedagogy. Various interpretations of the concept of self-development have been proposed in the encyclopaedic literature. On one hand, it is interpreted as the mental or physical development of a person, which he / she achieves doing exercises individually; or the development of someone on their own, without influence, the assistance of external

forces, on the other hand, self-development is defined as self-movement, which is characterised by the transition to a higher level of organisation. Investigating the essential characteristics of the concept of self-development, M. Kyrychenko conducted a content analysis of definitions, according to which the categorical peculiarities of self-development are considered as [27]:

✓process – 27,2% (A. Smanzer, I. Krasnoshchok, N. Pylypenko, H. Selevko, V. Boborykin, V. Marushchak, R. Tsokur, D. Chernilevskyi);

✓development – 18,2% (Comprehensive Dictionary of the Ukrainian Language, Philosophical Dictionary, Dictionary of the Ukrainian Language in 11 volumes);

✓self-movement – 15,2% (Great Encyclopaedic Dictionary, Philosophical Encyclopaedic Dictionary of Philosophy, Philosophical Encyclopaedia, Great Soviet Encyclopaedia);

✓change – 15,2% (Philosophical Encyclopaedia, S. Smyrnov, I. Kotova, Ye. Shyianov);

✓form – 12,1% of (P. Hornostai, L. Ziaziun, V. Slobodchikov, Ye. Isaiev);

✓movement – 9,1% (Ukrainian Soviet Encyclopaedia in 17 volumes, Large Explanatory Psychological Dictionary);

✓ability, capacity – 9,1% (V. Slobodchikov, V. Stepanov, S. Kulnevych);

✓performance, activity – 9,1% (M. Boryshevskyi, L. Zyaziun, M. Tsenko);

✓qualitative direction, orientation – 6,1% (T.Shainiuk, I. Kuzmenko).

The analysis of scientific works allows singling out the following key concepts which are basic while solving the problem of a pedagogue's vocational personality self-development:

✓the person-centred approach as a teacher's attitude to self-awareness, to the student not only as a subject of pedagogical interaction, but also as a person with individual developmental characteristics, genetically laid down and formed by character traits, behaviour in the society;

✓the activity-based approach as a subject-oriented organisation of the educational process, the central figure of which is the student with his / her needs and life goals. We would like to mention that solving these problems is not only the professional responsibility of the teacher, but also it develops the teacher as a personality.

3.2. Essential Characteristics of a Future Agrarian's Vocational Personality Self-Development

The result of generalisation and analysis of scientific materials on this issue is the substantiation of two main approaches to understanding the concept of self-development: ***psychological*** and ***procedural-organisational***. The latter includes an understanding of personal and professional self-changes as processes. It should be noted that both internally organised and externally organised processes of self-development are based on human mental processes. Self-knowledge, self-actualisation, knowledge of one's own mental and psychomotor abilities, emotional and volitional qualities have become the key to successful development and self-development.

Recent researches have also intensified a comprehensive understanding of the concept of self-development. Z. Kurliand defines self-development as the formation of a personality for the purpose of effective self-realisation "on the basis of internally significant forces", so there are two components of this process: external and internal [33]. L. Zenia understands self-development as an internally and externally organised process. The scientist alleges that the direction and intensity of self-development and self-improvement are largely determined by the social environment and the applied pedagogical tools. From the viewpoint of H. Selevko, self-development is a higher spiritual need, which includes the needs of knowledge, self-affirmation, self-expression, security, self-determination, self-actualisation, is a person's desire for development and self-improvement [23].

Personality self-development takes place in several aspects, and it triggers the greatest interest in personality self-development as a subject of vocational activity. In psychological science vocational development is considered as a process of professionalisation and is studied in the context of the ontogenetic development of people, their personal qualities, place and role of abilities and interests, the formation of the subject of labour, the problem of life and self-determination, the identification of the requirements of the career path, the formation of professional consciousness and self-awareness in the frameworks of different schools and areas [63].

The study of the category of self-development in the professional sphere includes reviewing the researches of A. Markova, L. Mitina, B. Masterova, V. Slastonina, R. Nemova, H. Zuckerman, which substantiate the idea of determining the personality development by activity, and therefore a person is studied from the standpoint of its compliance with the profession and successful activities in it.

Characterising the types of vocational competence, M. Poplavska reveals individual competence, highlighting such aspects of work as holistic vocational self-development, the substantive characteristics of which are: professional self-awareness, acceptance of oneself as a professional; constant self-determination; self-development of professional abilities; self-design; building your own professional growth strategy; construction and implementation of their professional life, etc. [63].

Vocational self-development is considered by researchers as a purposeful process of improving professionalism, which is determined by persons themselves. M. Svirzhevskyi defines vocational self-development as a process of integration of external vocational training and internal movement, personality development. External vocational training sets the content, forms, schemes of professional reflection, and internal movement provides energy, realisation, personal meaning of vocational self-development. External training and internal movement are components of the process of vocational self-development [75].

O. Piekhota considers vocational self-development as a constant process of mastering professionally necessary new, relevant knowledge, skills and abilities, their improvement in order to master the creative level of professional activity. The scientist correlates vocational self-development with conscious purposeful self-improvement, self-change in order to achieve high results in current and future professional activities [61].

Thus, analysing modern scientific views on the concept of vocational self-development, this process should be understood as conscious human activity aimed at full self-realisation as a person in the social sphere defined by the profession.

The process of a pedagogue's self-development in the vocational activities is especially significant. Modern requirements for a pedagogue's personality and professionalism have actualised new approaches to the definition of this concept. A pedagogue's vocational self-development is the subject of researches conducted by L. Mitina, A. Kuzhelnyi, V. Slastonin, I. Ziaziun, O. Chudina, O. Piekhota, S. Kubrak, T. Tykhonova, L. Pavlenko, O. Handabura, O. Chudina, V. Frytsiuk.

The self-development of the future specialist of the agrarian profile is an indicator of the subjectivity of the agrarian at all stages of his continuous professional education. However, the self-development of the future agrarian in vocational activities is an essential socio-cultural manifestation of the processes of self-organisation of the person, an inalienable human value and the need for the ideal, the result of their own conscious goal setting.

The purpose of a future agrarian's self-development is to increase the level of vocational competence, professional excellence providing ability to improve vocational activities. It is growth, formation, integration and realisation professionally significant personal qualities and abilities, professional knowledge and skills, but the main thing is "active qualitative transformation of the internal world by the expert that leads to fundamentally new way and lifestyle".

Examining future agrarians' readiness for vocational self-development, it should be considered as a complex structured education that contains four components: motivation-focused, which ensures the direction of further personal and professional transformations; semantic, which takes care of replenishing the system of special knowledge about the structure of future agrarians' personalities and mechanisms of vocational self-development; operating, providing mastery of methods and techniques of professional self-research and self-improvement; integration, which enables creating a unified picture of an agrarian's vocational personality, reproducing a certain stage of professional development and forecast, resulting from its features, future vocational activities, emphasizes the integration and implementation of professionally significant personal traits and abilities, professional knowledge and skills of an agrarian in the process of self-development.

L. Pavlenko emphasises that the basis of self-realisation of the creative potential of the specialists is their professional self-development, pointing to the interrelated forms of expression and realisation of personality: self-affirmation – the ability to show themselves and organise their activities so as to show their qualities, features, etc.; self-improvement – the prospects of personal growth, acquisition and further improvement of those traits and qualities of personality, the presence of which brings it closer to the ideal, as well as mastering new activities for the individual; self-actualisation is understood by the author as the highest form of self-development, which includes two previous forms, i. e. the ability of the individual to discover potential and use it to fulfil successfully their purpose in life [52]

The self-development of a specialist in professional activity is an essential socio-cultural manifestation of the processes of self-organisation of the individual, an inalienable human value and the need for the ideal, and the result of their own conscious goal setting.

The analysis of scientific researches helps to distinguish a number of essential characteristics of a future agrarian self-development, which are

also general for other occupations:

✓internal process of self-change of the individual under the influence of internal contradictions;

✓it is an internal process of self-change of the system under the influence of its own contradictions, a higher level of self-movement; at the same time, the self-developing system must be open, as internal resources will not be able to ensure the long-term existence of the system;

✓the way a person responds to the influence of the social environment;

✓the process of integration of external training and internal movement, one's own development. The external sets the content, forms, schemes, and the internal movement provides realisation of self-development, its value

✓ manifestation of activity, which is determined by the ability to make personal choices based on self-knowledge;

✓conscious qualitative change of oneself and one's own activity;

✓it is nothing but a sublimation of his / her creative activity, which is realised directly in educational activity, which in turn is aimed at personal, intellectual and active development of the student, while functioning as a basis for self-improvement of teacher and student in their interaction;

✓purposeful process in which changes occur not only in the motivational, emotional, volitional and intellectual and other spheres, but also in self-processes;

✓a special type of activity aimed at improving the efficiency of the self-processes, which are necessary for the successful implementation of activities (V. Andreiev, O. Leontiev, V. Maralov, L. Ruvynskyi). According to R. Oleksenko and Yu. Vasiuk, "self" (or self-image) is a person's view of self-concept, based on previous experience, relevant data and expectations of the future; expression of the general tendency of the organism to behave in such a way as to support and strengthen itself; conscious human activity aimed at the fullest possible realisation of oneself as a personality [48].

Consideration of the unity of vocational and personality development of future agrarians is a promising area of pedagogical researches. Human development, both personal and vocational, occurs in activities, as a result of which a person acquires specific skills that are transformed into personal traits. The personal result of a person's vocational development is undoubtedly much broader than the traditionally chosen forms of professional experience – knowledge, skills and abilities.

It is worth noting that most researchers point to the continuity of the processes of vocational and personality self-development. In vocational activities it is almost impossible to separate the personal beginning from the professional. In this regard, the content of professional activity is as close as possible to the realisation of the main human need – to be a personality, the need for self-realization. Personal and professional growth and self-improvement during the whole period of vocational activity is an essential condition for successful activity. L. Pavlenko notes that work is a means of self-expression, self-realisation [52].

In the works of N. Nychkalo, the holistic approach is related to the person-centred approach, it is argued that the activity acquires the ability to be reflected in the personality [46, 47]. Examining the personality and vocational development of specialists, M. Meshko came to the conclusion about their unity, as the principle of self-development is the basis of each direction. As the main factors of development, the scientist considers the internal environment of the individual, activity, the need for self-realisation [38].

More and more modern researchers substantiate the assumption that vocational self-development aimed at mastering a qualitatively new level of the vocational competence is directly proportional to the growth, formation, integration and implementation of professionally significant personal qualities and abilities, active qualitative transformation of personal traits into an effective working tool. Therefore, a promising area of modern pedagogical, psychological and acmeological researches is the phenomenon "vocational-personality self-development".

Vocational-personality self-development is actively considered in acmeology (acmeology – the science of reaching the peaks of human development) as a continuous process in which a person acquires the ability to manage current events, forms constructive and positive interpersonal relationships, intellectual, organisational skills, perception of life diversity, is open to life and social experiences. [44].

Scientists identify a number of basic qualities that a person needs for professional and personal growth.

Communicative qualities – sociability, politeness, tact, accessibility, respect, attentiveness and trust in others, willingness to help, the ability to be a good interlocutor, sensitivity, perception and understanding of another person, but also the ability to "present yourself", self-expression; ability to converge viewpoints – one's own and the interlocutor's, mood; ability to manage communication, make the necessary adjustments, empathy [22; 104].

Volitional qualities – self-confidence, self-control, restraint, entrepreneurship, endurance, balance, perseverance, risk-taking, determination, persistence, ability to set an adequate goal, courage, initiative, independence, purposefulness, independence [52].

Organisational and administrative qualities include the following: demanding more of yourself and others, the tendency to take responsibility, the ability to make decisions, the ability to self-assess, the ability to coordinate work, the ability to control, plan, the ability to motivate employees positively, the ability to take into account the psychological characteristics of a person or a group of people, the ability to "charge" others with energy [100; 101].

Psychologists also pay attention to such qualities as charisma – personal attractiveness, identification with the work performed, disclosure of their abilities, self-confidence and psychological balance, the ability to focus on the most important, the ability to motivate yourself and others, activity and energy, ability to be a role model, to radiate a positive perception of life, the ability to make decisions, the ability to set clear

goals for others and others, the ability to find the right approach to people, sociability, the ability to establish long-term and strong interpersonal relationships. For people with such qualities, according to psychologists, self-confidence, balance of character, and at the same time positive energy, high demands on themselves are characteristic. Such individuals can achieve high results themselves and at the same time encourage others to do so [70].

Intra-personal qualities of a person play an unconditional role in successful professional activity and effective self-development. They include: moral and ethical qualities (honesty, decency, kindness, commitment, awareness, reliability, honesty, intelligence, modesty, willingness to defend their beliefs, humanity, principled commitment, selflessness, ability to keep his word); emotional stability (emotionally unstable person painfully perceives criticism, usually treats others with distrust, easily upset, prone to nervous, reactive behaviour; adequacy of self-esteem (it is known that self-esteem can be adequate, underestimated or inflated. A person with low self-esteem Adequate self-esteem – promotes personal development through objective self-demand, self-education and self-improvement, absence of negative accentuations of the character (aggression, power, scepticism) – a quality needed by any specialist. Self-esteem is carried out through observation of oneself, one's actions, attitudes to oneself by others, analysis of one's feelings and experiences, motives and actions, achievements and failures, as well as through comparison of oneself with other people. Self-esteem is complex, as it extends to various manifestations of the personality – intelligence, external data, academic performance, work, communication, material and other opportunities. Self-esteem shapes a person's self-awareness and changes throughout life. The formation of self-esteem occurs in the process of activity and interpersonal interaction. The social environment significantly affects the formation of self-esteem. The structure of self-esteem is represented by two components – cognitive and emotional. The first reflects a person's knowledge of himself, the second – his / her

attitude to him / herself. A person acquires knowledge about himself through communication with other people. This knowledge is inevitably filled with emotions, the strength and intensity of which depend on how important the information received for the individual.

We will also pay attention to such a quality as creativity, which is associated with the creative achievements of the individual. In a broad sense, by creativity we mean the ability to reflect the ability of the future specialist to create new concepts and develop new skills. The creative personality tries to fully realise himself, to meet his / her capabilities as much as possible, to perform new, unusual for him activities, to apply new methods of activity. Keep in mind that some of these individuals have a tendency to take risks and to test their limits. Taking into consideration the importance of creativity for the modern specialist, we note that the world understands the need for creativity in various spheres of life. This is evidenced by the ratings of the Global Innovation Index, the Global Creativity Index and the Legal Talent Report. The Global Innovation Index is compiled annually by the World Intellectual Property Organization (UN specialised agency). It is advisable to offer such indicators. Last year Ukraine reached the 50th position and now the 43rd. There are indicators which increase the level of Ukraine in the ranking, including the level of creativity, the level of knowledge generation and intellectual products (27th position on this indicator). In turn, our position is significantly reduced by the institutional environment (public authorities, their efficiency and regulatory environment). According to this indicator, our ranking place is 107 [105]. The term “creativity” is synonymous with the concept of “creative thinking”. Creativity involves the realisation of a person’s individual abilities, which are revealed in the process of creative activity.

Conscious self-development is one of the means of self-affirmation. With the spread of freedom and responsibility of the individual self-development becomes not only necessary but also an indispensable subjective factor in its formation and development, socialisation and

individualisation. Without conscious, volitional self-development of the individual integrity, social maturity of the individual cannot be achieved. Conscious self-development of the individual is carried out, as a rule, in the forms of self-education and self-improvement. Self-education of the individual is understood as a specific type of internal activity aimed at developing skills, abilities, qualities for its self-affirmation and self-realisation in the society. Self-education is a universal means of resolving the contradictions between the desirable and available, appropriate and real, ideal and real in the personality development, between the need to meet human wants and the ability and capacity to implement it, between the public opinion and self-esteem, between values of the society, community and social guidelines of the individual. The direction of self-education can be prosocial or antisocial, altruistic or selfish (individualistic), multilateral (class) or one-sided functionally instrumental in nature. In the field of professional self-education it is important to be aware of the personality and determine the necessary changes.

In general, the process of professional self-education consists of: a) self-knowledge and decision-making about the need to work on yourself and correct undesirable qualities; b) setting goals and developing a program related to self-organisation and implementation of the necessary methods and techniques of self-education; c) practical implementation of the programme, which includes self-regulation and self-correction of vocational activities. It should be noted that the main way to intensify professional self-education is to include students in vocational activities (in the learning process, during independent educational activities, during training and production practice), otherwise the program becomes impossible. The highest form of self-development is self-improvement, which is carried out in the moral coordinate system as a means of self-creation, which requires moral (ethical) reflection, individual creativity for producing innovative ideas. It is recognised that now the role of higher pedagogical education is determined not by “specialist training”, but by “vocational education”, i. e. primarily a person with a rich inner world,

individual identity, spiritual wealth. This task highlights the need for students to develop their own trajectory of personality vocational self-development, which cannot be realised without the internalisation of professional values.

With the entrance to a higher education institution a young person acquires more independence, the leading activities become educational-professional, research. Students acquire knowledge, skills, abilities to act successfully in future professional activity, so the main thing for the student should be the focus on preparation for the chosen profession, developing an attitude to professional activity as a way of self-realisation. It is established that the efficiency of forming vocational competence of a future agrarian depends on the level of such personal qualities as motivation to succeed, self-esteem, subjective locus of control. It is determined that the professional self-development of the future specialist is the most important aspect. Motivation is directly related to the subjective locus of control. Intrinsically motivated students need less control. Under external motivation, control acts as a driving force on the way to overcoming difficulties, as a method of increasing self-esteem, increasing independence. A high level of self-esteem means flexibility in restructuring one's behaviour in response to successful (unsuccessful) results of one's activities and is associated with self-efficacy. The higher its level, the more the student makes an effort to achieve the goal and show perseverance [10; 12; 78]. As we can see, many scholars support the position that to form the readiness of students, future professionals to carry out vocational self-development, it is necessary to implement a set of organisational and pedagogical conditions, which include as a subjective component (formation of internal motivation, self-development needs and others) and objective (creation of an educational environment, implementation of the model of professional training with the use of teaching techniques and technologies that contribute to gaining experience in self-development in the personal and professional direction; formation of future specialist skills at a certain stage of his / her professional activity,

etc.) and objective (creation of an educational environment, implementation of the model of professional training with the use of teaching techniques and technologies which contribute to gaining experience in self-development in the personal and professional direction; formation of future specialist skills at any stage of vocational activity, etc.).

We emphasise another vital aspect for vocational personality self-development – hypothetical intellectual abilities (speed of thought, flexibility of thought or the ability to switch from one idea to another, originality or ability to produce ideas which differ from generally accepted views, curiosity or sensitivity to problems), the ability to develop hypotheses, irrelevance or logical independence of the reaction from the stimulus [63].

3.3. The Phenomenon of a Future Agrarian's Vocational Personality Self-Development and the Algorithm for Its Implementation

Vocational personality self-development is recognised as the most important element of professional activity and is understood as a specific self-organisation of personal educational and development space, in which a specialist acts as a subject of vocational development and growth, where he / she develops and adopts the content and technologies of the modern world, the development of individually creative professional handwriting, the author's approach to vocational activity.

The problem of future specialists' vocational personality self-development is considered by T. Titova as a process of a qualitative, purposeful, conscious change of the personal sphere, which ensures the self-development of the child's personality and is a prerequisite for the formation of subjectivity. It defines the functions through which the essence of a future specialist's vocational personality self-development is most fully disclosed: the purpose of the research determines the specifics

of social behaviour, vocational and educational (while acquiring education) activities of the future specialist; reflexive – self-development encourages the future specialist to analyse causal relationships, stimulates the development of ability to self-learn, work and apply this ability to difficult conditions and circumstances of professional reality, search for personal assessment of his / her own life and professional experience; active interaction – self-development, as an internal qualitative change, which is based on the contradiction between the real and ideal self, causes the need for the activities and movement of the future specialist (interaction triggers self-development mechanisms with a significant other); normative – self-development maintains balance in the system of a specialist's activity, reduces the impact of destabilising factors in the professional environment, determines compliance with legal relations. The researcher presents vocational personality self-development as a relationship of such components: self-consciousness – self-esteem – self-organisation – self-management [86].

The process of a specialist's vocational personality self-development has its own unique specifics and consists particularly in the development of professional and important qualities, innovative and creative thinking, scientific worldview, professional independence, search and research skills, as well as mastering deep knowledge and the ability to put them into practice [78] M. Kozolup considers vocational personality self-development as an integral part of the future specialist's vocational activity [29; 30]. The researcher reveals the essence of vocational personality self-development through its functions:

✓ goal setting function → determines the value-semantic orientations of the future specialist;

✓ reflexive function → self-learning of the future specialist, work on yourself, search and personal assessment of your own life and professional experience;

✓ regulatory function → the observance of legal relations;

✓ active interaction → the mechanism of self-development.

Summarizing scientific researches devoted to the issue of vocational personality self-development, we came to the conclusion that future agrarians' vocational personality self-development is understood as a continuous process of disclosing their personal and professional potential, which affects both vocational activity in general and the formation of professionally significant personal qualities [13; 74; 90].

Vocational personality self-development is the process of a qualitative, purposeful, conscious change of personal sphere, which ensures an increase in the level of professionalism, professional self-improvement, and is an integral condition for the formation of subjectivity, harmonious comprehensive development and self-realization of the individual.

On the basis of philosophical and psychological researches conducted by N. Berdiaiev, V. Frankl, K. Albukhanov-Slavska, B. Ananiev, A. Derkach, E. Klimov, H. Klymenko, in the structure of a future agrarian's vocational personality self-development we highlight the processes of self-knowledge, self-education, self-control and self-actualisation.

In the process of self-knowledge, the personality reveals both the strengths and weaknesses of personal and professional capabilities, and creative potential. The most common ways of self-knowledge include the following: self-observation, self-analysis, comparing you with some indicators, modelling the personality, awareness of opposites in each quality, behavioural characterisation. Self-knowledge also involves the research of the requirements for a professional self-study of the level of competence, self-assessment of vocational activity. A key role in the process of self-knowledge of the future specialist is played by professional self-awareness:

- ✓professional awareness of norms, rules, models of vocational activity, formation of professional credo, concept of work in the agricultural sector of the economy;
- ✓correlation with some professional standards, identification;

✓the evaluation of your personality conducted by other, professionally referential people;

✓self-esteem, in which the emotional aspect, cognitive aspect and self-awareness of your activities stand out.

In the process of self-knowledge "Self-concept" of an agrarian is formed. Here it essential to determine contradictions between the ideal self and the real self, outlining the range of personal and professional characteristics needed to be improved. Let us pay attention to the special role of the mentality of the Ukrainian agrarian in the creation of the "Self-concept" and its characteristic features. O. Polozenko has mentioned it in the work "Organisational-pedagogical conditions for improving the pedagogical activity of a teacher of an agrarian higher education institution". She notes that the way of life and social mentality of Ukrainian farmers is formed on the basis of common sense: everything that seems inappropriate to them is eliminated in time. And all that is not enough in their lifestyle, partly born in the depths of people's lives, partly borrowed from other nations. It gives order and stability to life: everything has its meaning and its name – good is called good, evil is called evil. Everything is interconnected, and nothing can exist separately, everything has its place and time. At the same time, unity and integrity do not contradict beauty and diversity: beauty is not separated from benefit, and benefit – from beauty. In other words, the life of the agrarian does not tolerate either monotony or uniformity – it is constantly evolving [62].

In the structure of vocational personality self-development self-education (self-learning, self-training) plays a vital role, enabling individuals to expand the systems of professional values and ideals, mental needs and interests in self-learning and self-training, provides the formation of professional qualities and elimination of traits which prevent achieving professional success and, on the basis of this, significantly deepen and expand the stock of professional knowledge, skills.

In the context of vocational personality self-development self-educational activity of a specialist is aimed at processing thematic

information, determining the peculiarities and stages of vocational personality self-development, which is achieved through:

- ✓work with scientific, methodological, professional literature, scientific periodicals;
- ✓participation in seminars, conferences, trainings;
- ✓discussions, debates, experience exchange with colleagues;
- ✓acquaintance with the experience of innovators;
- ✓ work in the Internet environment: professional videos, thematic communities, watching movies, communication with foreign colleagues.

After achieving an understanding of the peculiarities of the process of vocational personality self-development and drawing up the "Self-concept", the specialist forms his / her own strategy of self-development as a person and a professional.

Self-realisation of the individual is aimed at implementing a strategy of vocational personality self-development, manifestation of professionally significant qualities, improvement of personal characteristics, disclosure of personal potential, achievement of the professional excellence, professional creativity.

Self-control as a component of vocational personality self-development allows you to assess objectively actions, outline goals, control, and timely correction of the process of vocational personality self-development on schedule. Self-control involves mastering the skills of reflexive assessment of your own activities, matching the results and the process of vocational personality self-development with the initial goals and objectives, compliance of the personality actions with the chosen strategy. Among self-control techniques we can distinguish such as self-analysis, self-esteem, corrective actions.

Thus, vocational personality self-development should be considered a dynamic integrative process, which is necessarily expressed in changes in personal and professional characteristics, consequently ensuring a new level of needs, readiness and opportunities for a future specialist's self-development and self-realisation from the beginning of study at the

university. In the process of vocational personality self-development future agrarians should act purposefully, systematically and efficiently, therefore it is advisable to develop your own strategy of activity that meets the goals, objectives, implementation of vocational personality self-development, will regulate its efficiency (Fig. 3.2).

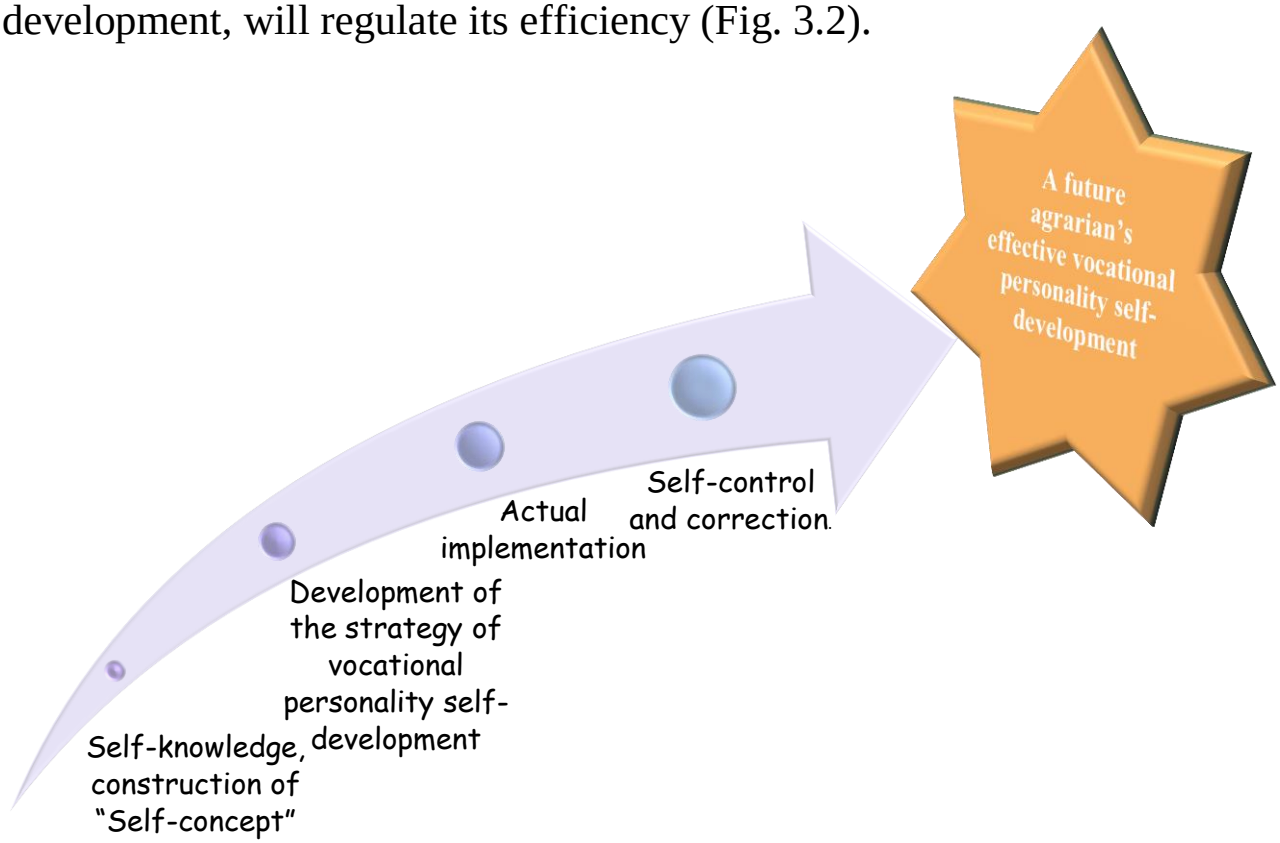

Fig. 3.2 Algorithm of Providing the Efficiency of Vocational Personality Self-Development

Source: Compiled by the authors on the basis of the processed sources [16; 57; 62].

Taking into consideration the fact that the process of a specialist's vocational personality self-development is based on the processes of self-knowledge, self-education, self-realisation and self-control, the algorithm for the implementation of this process should include the following stages:

1. Self-analysis, knowledge of those specific requirements for the specialists' vocational activities, the creation of the "Self-concept" (assessment of their knowledge, skills and qualities, determination of the degree of compliance with the requirements of the profession). While building the "Self-concept", we should pay attention to identifying our

own positive traits and negative qualities, developing priority goals and values of future professional and life activities, understanding our life purpose.

2. Development of a strategy of vocational personality self-development, which includes the development of theoretical peculiarities and practical ways to carry out vocational personality self-development and plan our own actions for implementation (goals, objectives, ways of achievement). At this stage, it is necessary to realise what vocational personality self-development is, determining the motives for working on yourself, choosing ways and tools to achieve the goal. It is important to formulate tasks specifically, determine the deadline for the achievement of the goals.

3. Actual implementation of the strategy by a specialist in the process of vocational activities. At this stage, the specialist performs the tasks, reaches the intended goals, improves individual and psychological characteristics, and increases intellectual and professional levels. Vocational activity is determined by innovation, creativity, increasing the efficiency of educational tasks, the development of creative personalities, and constant motivation for self-development.

4. Self-control and correction. There is an assessment of the effectiveness and efficiency of the strategy of vocational personality self-development and correction of the plan in case of detecting shortcomings or the absence of positive changes.

We can assess our own strategy of vocational personality self-development on the following points:

- ✓ relevance, expediency, compliance with the requirements for the personality and professionalism of a specialist;
- ✓ specificity, indication of deadlines and ways of implementation;
- ✓ reality (achievability);
- ✓ optimality of methods and techniques;
- ✓ efficiency (justified by the results of self-diagnostics).

O. Zhabenko's opinion [21] regarding the creation in the process of

vocational training of future specialists in the axiological space of vocational activity, which is realised through the value relations of the subjects of the holistic professional process, is true. The functioning of such an axiological space is ensured by a set of psychological-pedagogical conditions, in particular: the formation of a personal-creative, value-significant concept of the chosen vocational activity and its essence; awareness of the value of vocational activity (unity of educational values, teaching and development); development of reflexive and subjective position of the future specialist; inclusion of teachers and students in innovative, value-significant pedagogical activity during studying at the university; orientation of the subjects of the axiological space to the creative self-realisation of the future specialist; differentiation and individualisation of the system of vocational development; implementation of variable forms of improving the quality of forming the value component of professional culture.

Summarising practical developments in the direction of students' vocational personality self-development, we have determined the tasks, activities, forms, methods of its stimulation in future specialists. Particularly, the tasks of vocational personality self-development include: the formation of students' ability to think extraordinary, the development of skills to substantiate their own positions and life values, the development of the ability to cooperate, start a partnership dialogue, while showing tolerance, tact, goodwill, etc. These tasks are solved through: formulation of the objectives of the activity; awareness of the importance of activity; defining the means of attaining the goal; analysis of difficulties in achieving the goal and ways to overcome them; creation of self-improvement programmes, design of vocational personality development strategy, forecasting of future professional activity, formation of a strategy for solving professional problems; analysis and self-analysis of own activities; involvement of students in joint problem solving, as well as through the following forms and methods: heuristic conversations, presentations, discussions, brain storm, round tables, business games,

practical competitions with discussion, trainings, collective solutions of creative tasks, case method as consideration of specific professional situations, practical exercises, modelling situations, inclusion of students in role-playing and business games, creative discussions, workshops, seminars-games, seminars-shows, trainings, modelling of pedagogical situations, preparation of scientific projects, introduction of acmeological cards “teacher-master”, drawing up professional and personal self-portraits that contribute to the formation of a positive “Self-concept”, the development of creative thinking. The conditions for stimulating professional self-development are: software and target provision of positive motivation; creation of a reflexive environment; gaining experience in innovative pedagogical activity; mastering the knowledge and skills of professional self-improvement.

The phenomenality of vocational personality self-development reveals itself in the fact that this process is carried out simultaneously under the influence of internal and external factors; there is an internal change of status, improvement of professionally significant qualities of the individual, accompanied by an external manifestation of the professional competence of a specialist. Self-development stimulates the transformation of vocational activity, which, in turn, is one of the encouraging forces of personality development. Vocational self-development and its content do not remain unchanged; they change with the personal growth of a specialist who finds new facets, new content and new forms of this process. Understanding the vocational personality self-development of a modern agrarian specialist allows us to consider it as a result of vocational training, acquisition of individuality, uniqueness, spirituality, subjectivity. This is manifested: in the ability to comprehend and interpret the latest processes independently, both social and technological in nature; in expediency, validity, freedom of action in situations of self-training and learning; in the originality of the choice and combination of tools, forms, positions, methods of activity; the ability to influence consciously the change in the situation in which this activity is carried out. Therefore, it

can be argued that personal and professional are part of a single process of vocational self-development of a modern agrarian.

The above conducted analysis gives grounds to distinguish the following basic components of an agrarian's vocational personality self-development (Fig. 3.3): motivational-value; cognitive-creative; efficiently-evaluative.

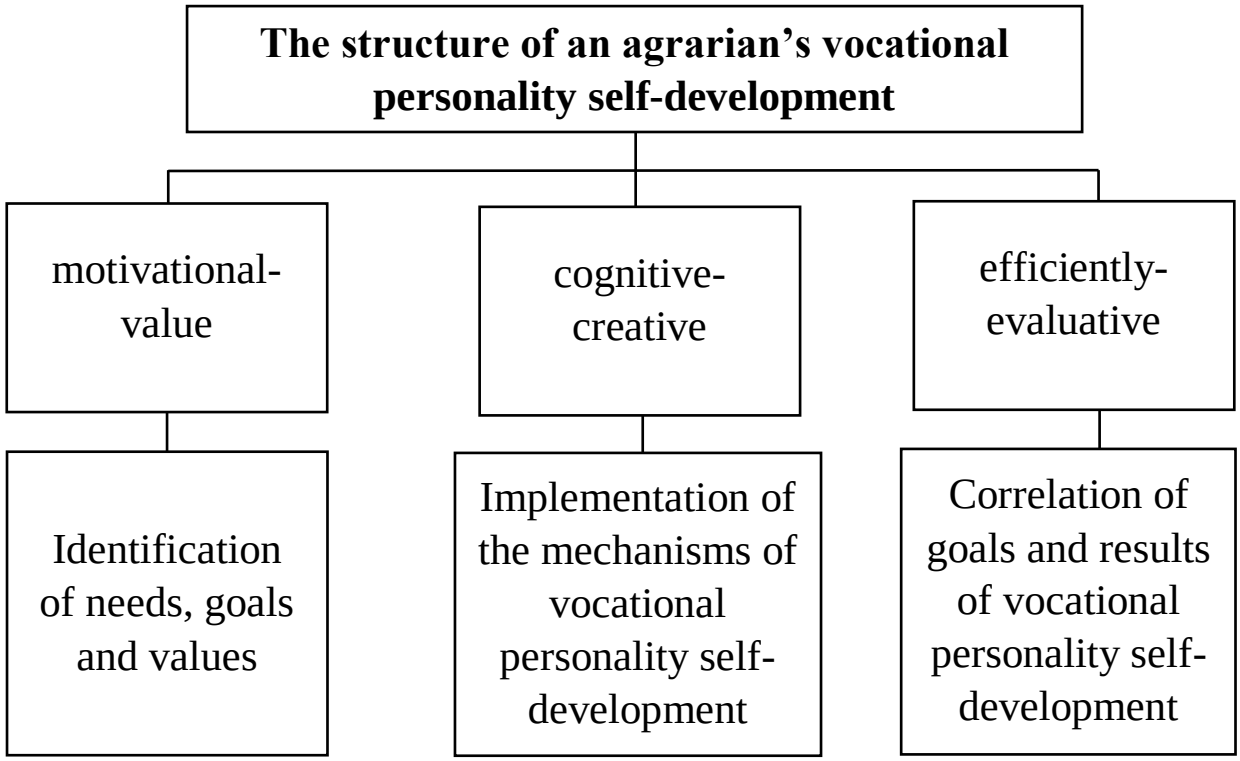

Fig. 3.3 Basic Components of an Agrarian's Vocational Personality Self-Development

Source: Compiled by the authors on the basis of the processed sources [22; 37; 41; 52].

We would like to emphasise that these components can be transformed, but in general they form the structure of a future agrarian's readiness for vocational personality self-development.

We consider the motivational-value component as the future specialist's awareness of the motivation, which stimulates the readiness for vocational personality self-development, skills and abilities for further self-education, self-realisation, professional identity, the desire for self-improvement. The conducted interviews and surveys with teachers and

students at Vinnytsia National Agrarian University have enabled us to find out a number of incentive factors that significantly affect the formation of the motivational-value component: conscious choice of specialty (without coercion from parents); the desire for self-realisation in the student team; escape from modern social obligations; the desire for a stable material condition.

The value characteristics of this component are determined by students due to the need to form socially significant qualities: independence, social activity, personal responsibility, the ability to build productive social relations. This emphasises modern students' understanding of the importance of vocational personality self-development as the most essential condition for the competitiveness of the subjects of social-practical activities.

The cognitive-creative component of vocational personality self-development is considered as the willingness of a future specialist to master both professional knowledge and soft skills which help to navigate and communicate freely in the society; focusing on the creative application of professional knowledge in non-standard situations and creating a non-standard approach to the standard situation leading to innovation. Moreover, we associate the cognitive-creative component with communication abilities and the ability of conflict-free communication, knowledge of professional ethics, which prevents conflict situations.

The efficiently-evaluative component directs the student to review his/her own achievements regarding the state of vocational personality self-development and form the motivation for its further self-improvement.

Scientists distinguish the following typical stages in the formation of readiness for vocational personality self-development (we believe that they are well coordinated with the structural components we have identified above): a) the transitional stage is based on adaptation to new conditions, at the same time there is a focus on self-analysis, the formation of a conscious attitude to the chosen profession; b) cumulative stage – mastering knowledge, skills and abilities in the chosen profession and

individualisation (awareness of the difference in their capabilities from the capabilities of other students), the formation of professional qualities, the continuation of forming awareness of the profession; c) orientation stage – (it is worth noting the main role of the principle of integration at this stage), the unity of all components of the professional formation and further development in the structure of the personality's significant qualities, relationships, basis of professional skills.

Considering the algorithm of providing the efficiency of vocational personality self-development, we would like to focus on the role of social conditions for its formation. Family and upbringing are important conditions for professional and personal growth, since the basis for the formation and development of vocational-personal qualities and skills that determine a person's professional success is laid in early childhood. For example, L. Pavlenko emphasises that the efficiency of self-development of professional and personal qualities, both in children and adults, is determined primarily by parental education. An environment in which there is a person, for example, a student (graduate) who studies (works) in a group (team) with stronger and more successful people, may either be pushed into themselves remaining silent, become invisible, or compete with them, improving their qualities and strive to achieve professional and personal success [52]. It defines the functions through which the essence of a future agrarian's vocational personality self-development is most fully revealed: goal setting – determines the specifics of social behaviour, vocational and educational activities of a future agrarian; reflexive – self-development encourages a future agrarian to analyse causal relationships, stimulates the development of the ability to self-learn, improve and apply this ability in difficult conditions and circumstances of professional reality, search for personal assessment of his / her own life and pedagogical experience; active interaction – self-development, as an internal qualitative change, which is based on the contradiction between the ideal self and the real self, causes the need for the activities and work of a future agrarian (interaction with a significant other triggers self-development

mechanisms); normative – self-development maintains balance in the system of an agrarian's activity, reduces the influence of destabilising factors in the pedagogical environment, determines the observance of legal relations. The researcher submits vocational personality self-development as a relationship of such components: self-awareness – self-esteem – self-organisation – self-government [52]. Control of positive dynamics in professional-personal self-management of a specialist can be monitored according to the following changes: 1) changing the orientation of the individual and attitudes (circles of interests, desires, systems of needs, motives: the advantage of the needs in self-realisation and self-development, motives of achievement, increase of creativity); 2) accumulation of experience and professional development (improvement of knowledge, skills and abilities, increase of competence, assimilation of new algorithms for solving professional problems); 3) development of attention, memory, increasing the level of self-regulation, the ability to choose optimal actions in non-trivial situations; 4) development of professionally important qualities due to the specifics of the activity; improvement of personal and business qualities, moral and aesthetic qualities, etc.

CONCLUSIONS

Philosophical reflection and scientific views on the concept of self-development have proved that the processes of vocational personality self-development should not be considered in isolation, they are closely related and impossible to contrast them with each other.

The source of vocational personality self-development is the contradiction between the achieved level of personality development and the requirements of the society for the quality of training specialists and their individually psychological properties and qualities. The leading factor of vocational personality self-development is the system of objective requirements for the individual, which is determined by vocational activities, in the process of which new properties and qualities of both the individual and the professional ones arise.

The specifics of a future agrarian's vocational personality self-development consider the priority of the self-value of the personality; position; high degree of awareness of the essence of the future profession. A future agrarian's vocational personality self-development integrates all components of the educational process at the university and gives it a multifaceted systemic character, determined by the purpose of personality development in the period of preparation for future pedagogical activity.

The process of forming of future agrarians' readiness for vocational personality self-development is influenced by internal (psychophysiological features; formed motivation for the quality of training and vocational training; readiness for change; the need for self-education and self-development) and external factors (socio-economic conditions in the society; requirements for a modern specialist; construction of an educational process at the university on the basis of subjective relations "teacher – students"; meaningful opportunities for educational-professional and vocational activities).

The structure of an agrarian's vocational personality self-development is formed by motivational-value cognitive-creative efficiently-evaluative components. In their totality these components substantively reflect the integral characteristics of a future specialist' personality: orientation, competence, emotional and behavioral flexibility, etc., necessary for the successful activity.

CHAPTER 4
MODELLING OF FUTURE AGRARIANS' VOCATIONAL PERSONALITY SELF-DEVELOPMENT

The chapter defines the theoretical basis for modelling of future agrarians' vocational personality self-development: pedagogical conditions, content, methods, forms and tools aimed at forming the components of this phenomenon. The model of vocational personality self-development conceptualises the pedagogical system and describes all its components.

4.1 Theoretical Bases for Creation of the System of Future Agrarians' Vocational Personality Self-Development

The concept of the research of vocational personality self-development is based on the main provisions of pedagogy, psychology, philosophy, which allows considering vocational personality self-development as a complex phenomenon that requires the development of a special pedagogical system that will significantly increase the level of vocational training of specialists and their socialisation in the society.

The technological concept includes the implementation and verification of the research results, namely the author's methods of forming vocational personality self-development, diagnostic methods, presentation and processing of the results of the experimental work using mathematical statistics. Analysis, synthesis, comparison, generalisation, modelling for the purpose of researching the source base, clarification of

the main definitions, creation of the system of vocational personality self-development have been widely used as theoretical methods. Curricula and programmes of all directions and levels of future specialists' training courses at Vinnytsia National Agrarian University, as well as concepts, theories of Ukrainian and foreign scientists have become the subject for analysis.

In order to determine the levels of students' readiness for vocational personality self-development, empirical methods have been used, including questionnaires, conversations, observations, tests, swot analysis, etc. The efficiency of the proposed methodology for forming future agrarians' readiness for vocational personality self-development has been verified during the pedagogical experiment and has been described in chapter 5. Verification and identification of statistically significant characteristics of forming future agrarians' readiness for vocational personality self-development have been carried out during the pedagogical experiment with the use of mathematical statistics (see chapter 5).

In the process of work, a set of methods has been used, which together have provided the logic of the research deployment and clarity of describing the obtained results. Main theories and methods of modelling psychological and pedagogical systems have provided the basis for designing the model of forming future agrarians' readiness for vocational personality self-development.

The most general definition of the model reveals the content of this concept as an artificially created object in the form of a scheme, physical structures, iconic forms or formulas, which reproduces the structure, properties, relationships and relationships between elements of a particular object in a simpler and more convenient for research form. The efficiency of modelling, namely the compliance of the proposed model of the pedagogical object, its prognostic adequacy, validity, are determined by initial theories and hypotheses. On one hand, they indicate the limits of the simplifications permissible when modelling, on the other hand, determine the research field of the applied model. One of the defining criteria for the

performance of any model – physical, mathematical, semantic – is its adequacy degree due to the surrounding reality. Therefore, we shall pay the greatest attention to this criterion.

The next important criterion for us is pedagogical validity, which also determines the degree of modelling efficiency. This concept is close to such concepts as authenticity, adequacy, but is not considered as the same. The criteria for the efficiency of pedagogical models should be substantiated in a comprehensive way: conceptually, criterionally and quantitatively, since in pedagogy multidimensional and multifactorial processes are modelled.

One of the effective ways to increase the validity of the model is an integrated (or systematic) approach to modelling. Its essence lies in the facts that with the help of extensive expansion of the system of models, additional "sub-models" are introduced, which cover various factors and directions of the dynamics of the researched system. The complex model is not just the sum of the constituent models, but a system that combines the constituent elements related to each other. Consequently, it cannot be an arbitrary set of models that contributes to the eclecticity, arbitrariness and chaoticity of the description, which does not lead to a scientific interpretation of the predicted results.

Pedagogical modelling is considered as an independent direction in the general research method, and this direction has specific features reflecting the peculiarity of modelled phenomena [33]. In addition, pedagogical modelling determines its own problem field, the meaningful content of which occurs due to the existing pedagogical experience (we note that in most cases it is associated with the use of authors' methods).

Modelling of pedagogical phenomena is associated with the correct formalisation of real phenomena. However, there is a need to compare the results obtained during the construction and study of the model with the original. This comparison is usually carried out in several complementing ways with cross-checking. If the test results coincide and the predefined accuracy, we can assume that the model is valid. In our study, when

checking the results, we believe that pedagogical validity is an operationally specified degree of adequacy of a model that describes a pedagogical phenomenon.

The forms of modelling used in psychological-pedagogical researches are varied. By the nature of the models distinguish subject and sketch modelling; according to the method of application – research and didactic models; by nature, structural and functional models are displayed.

Since pedagogical phenomena are dynamic phenomena, that is, those that change over time, it is worth distinguishing between the concept of a dynamic and static model. For example, models such as the logical structure of the educational material of a particular chapter of a particular discipline have all the properties of static models. Dynamic models are more often used to study pedagogical phenomena and processes. They include both a model of the structure of the phenomenon and a model of functioning, namely, there is a dynamic part of the processes that occur. Along with dynamisation, pedagogical models are characterised by uncertainty of modelling results, especially in a long term. Therefore, in pedagogical modelling it is important to take into account the principles of uncertainty.

The description of the specifics of modelling social systems involves preliminary clarification of what the researcher understands under the system. Furthermore, the system assumes the existence of the principles underlying the special theoretical idea of a phenomenon or an object. The theoretical system is created in order to adequately describe and predict the development of a certain phenomenon. Social systems unite different organisations and structural units associated with a common function to achieve a specific goal. The pedagogical system interacts with the external environment as a whole. The system can be considered abstract, if its composition is known and determined, the hierarchical structure of elements-objects and the relationship between them, but at the same time the nature of these elements-objects remains unknown.

The system approach in the design of the model of future agrarians' vocational personality self-development is influenced by the methodological and theoretical disconnection of researches of the pedagogical process at higher education institutions. The system description implies the need to consider vocational personality self-development as a multifaceted phenomenon and provides for its multidirectional characteristic [58]:

- ✓ as a high-quality unit, a system that has its own specific patterns;
- ✓ as a part of the species-genera macrostructure, the laws of which it obeys (in our case, the system is the formation, which includes the investigated phenomenon – the pedagogical process at higher education institutions;
- ✓ in the context of microsystems, the laws of which it obeys;
- ✓ in the context of its external interactions, namely, together with the development and requirements of the society.

Building a meaningful model of future agrarians' vocational personality self-development on the basis of systematisation of knowledge about this process and its psychological-pedagogical principles, enables obtaining new information about the peculiarities of future agrarians' vocational personality self-development at the university, identify its relationships and patterns and identify ways of further improvement. The system approach to pedagogical phenomena helps us holistically understand the integrative processes that arise in vocational personality self-development. Moreover, we have designed the model taking into consideration the requirements of normative documents defining modern education as a sociocultural space for the personality development of a modern specialist [67].

The creation of a structural-functional pedagogical model is a research conducted on the basis of the system approach and involves focusing on certain (in our case – information, communicative, technological) parameters of the model, which ensures the development of an innovative product, theory and methodology of the future specialist's vocational

personality self-development. Paying attention to the above-mentioned theoretical-methodological positions, we consider it possible to state that the modelling of future agrarians' vocational personality self-development should be based mainly on the cultural and organisational grounds of professionally personal interaction and is a system-orientation modelling, since it covers all components of this process: goals and objectives; principles; pedagogical conditions; functions, outcomes.

Determining the conceptual basis for building a model of future agrarians' vocational personality self-development in modern conditions, we relied on the inconsistent unity of priority psychological-pedagogical approaches in education:

✓***the student-centred approach*** – consideration of an agrarian's vocational personality self-development as a process of individualised indirect communication aimed at forming key competencies, socially significant qualities of the individual, implementation of the subject recognition of ambiguity and variability. From the standpoints of this approach, there is an opportunity to interpret educational interaction as a system-forming component of an agrarian's vocational personality self-development;

✓***the sociocultural approach***: at the same time the student performs both as the object of influence and the subject of knowledge in the educational process. The sociocultural approach allows you to explore both the social reality and its perception, the idea of its development in the future specialist depending on their position in the real social space. In the process of applying the sociocultural approach, two interrelated trends of sociocultural changes are revealed and substantiated: institutionalisation, which is carried out through certain sociocultural mechanisms, and universalisation as a process of disclosing the essence forces and abilities of a person implemented in the process of anthroposociogenesis;

✓***the acmeological approach*** is now one of the most progressive and promising for modern education. The essence of the acmeological approach is to carry out a comprehensive research and rebuilding of the

subject's integrity, the research of its vocational personality and subject-activity characteristics in unity, in all interrelations for achieving vocational personality self-development by a future specialist;

✓ ***the axiological approach*** has the concept of an interdependent and interacting world at its core. In accordance with this concept, living space is the world of an integral person, so it is important to see the common one that unites humanity and characterises each individual. Its relevance is determined by the need to form a system of value orientations as the basis of behaviour, relationships and consciousness; as part of the worldview of the individual. Value orientations are an integral component of the personality's structure, they summarise the life experience gained by the individual in personality development. But the benchmark of human activity and behaviour can be values only if a person has a value consciousness and relationship, if it is possible to determine the most significant value, as well as the ability to realise and perceive universal values as their own values in an appropriate situation;

✓ ***the action-oriented approach***: determining the strategy of designing the model and creating the most flexible invariant "development trajectories" and self-realisation of the individual in the activities of educational interaction.

The student-centred approach for our research is of exceptional importance, since it allows us to start from the idea that vocational personality self-development is not only the students' work on themselves, but also a scientifically justified and methodically expedient approach of the teacher to each student as a future specialist, who must take into account psychological characteristics in the process of each period of the research with simultaneous analysis of the conditions of the university environment. At the same time, attention should be paid to the adaptation, socialisation and self-esteem of the student, which are one of the most important factors of vocational personality self-development, because they directly affect the motivational-value and emotional spheres of a future specialist. The student-centred approach helps create a positive atmosphere

for learning and the opportunity to receive psychological support in the learning process.

An important problem associated with the theory and practice of pedagogical modelling is the problem of considering the individual as a component of the pedagogical system. The individual, in fact, becomes the goal (since the pedagogical system is humanistic) and the object of this activity. The personality acts as the object and the subject in relation to the environment that is mastered by the system (in our case, we consider information educational environments). These different aspects of consideration of the individual within the non-balanced self-organised pedagogical system require the creation of its integrative characteristics as a significant basis to develop a pedagogical model.

In our research external relations are considered as prerequisites determining the formation of experience in communication and information activities of the subjects of pedagogical interaction outside the organised process and are not subject to direct pedagogical regulation. We associate the transformation of the internal structure of the educational process with the organisation of pedagogical interaction, since its structural components affect significant aspects of this process – the quality of educational (factual, didactic) information, the nature of pedagogical communication and the quality of pedagogical influence on the personality of students.

Information-educational orientation of the organised process of vocational personality self-development and organisation of educational interaction as a logical centre for building a model and make the choice of its guidelines:

✓in the external environment of the university's educational process it is the focus on expanding the information and educational contacts of students, increasing the existing educational resources and creating their new forms;

✓in the internal (communicatively organised) space of the educational process is the focus on the dialogue, subjective interaction of its

participants; formation of a holistic information-educational communicative space that contributes to students' vocational personality self-development.

In general, the orientation of the university's educational process towards active pedagogical interaction creates conditions for students' vocational personality self-development, their social identification, the formation of the ability to comprehend educational information.

The study of the theoretical basis on the topic of research allowed us to formulate the authors' definition of the structural-functional pedagogical model of forming future agrarians' readiness for vocational personality self-development, that is interpreted by us as a systemic set of interrelated components carried out in the process of educational interaction, which retain the inconsistent unity of its characteristic features (openness and at the same time uniqueness, security of the educational space) and, as a result of their realisation, create informational educational space of a higher education institution, which provides conditions for students' successful vocational personality self-development. The main pedagogical mechanism for implementation of the process of future agrarians' vocational personality self-development at higher education institution is the practical implementation of scientifically based content, the innovative teaching technologies and control over its course and time correction of the result.

4.2 The Model of the System of Forming Future Agrarians' Readiness for Vocational Personality Self-Development

The research of methodological-conceptual bases of forming future agrarians' readiness for vocational personality self-development has confirmed the importance of taking into account the hierarchical relationships of all its components. The parameters of the structural-functional model have been defined: systematisation of all components of the model, hierarchical subordination, which facilitates the provision of

each component of the system in accordance with the established procedure, accessibility (provides the possibility of its use by both teachers and students).

The model of the system of forming future agrarians' readiness for vocational personality self-development contains the target, theoretical-methodological, diagnostic, information-activity oriented and efficient components (Fig. 4.1).

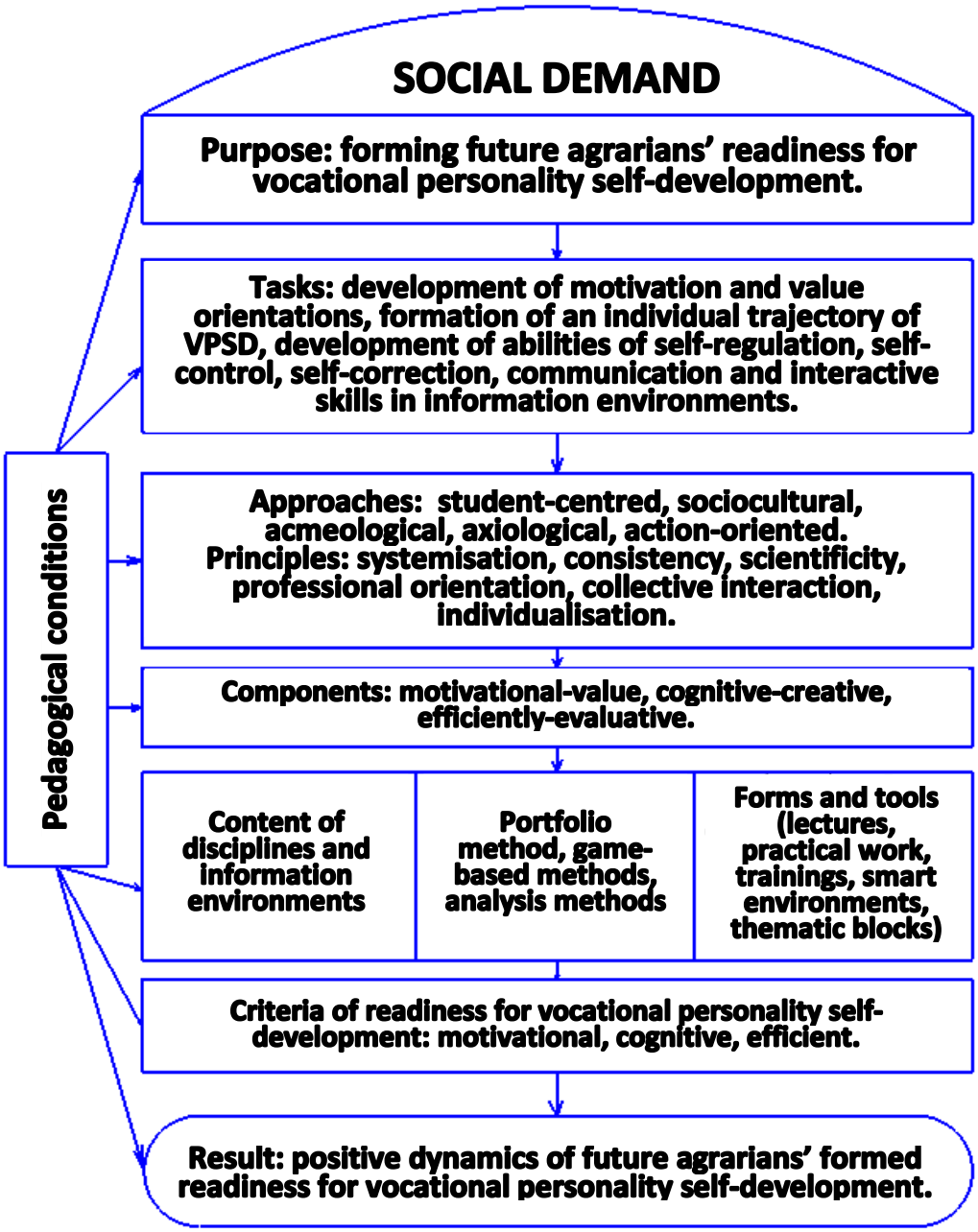

Fig. 4.1 Model of the System of Forming Future Agrarians' Readiness for Vocational Personality Self-Development

Source: Compiled by the authors on the basis of the processed sources [24; 26; 35; 79; 87; 103; 106].

The ***target component*** reflects the purpose according to the social demand and dynamically changes with changes and requests of the society. Social order reflects the need of the society for highly qualified specialists, ready for constant professional personal growth.

In the ***theoretical-methodological component*** methodological approaches and principles are accumulated, on which a future agrarian's readiness for vocational personality self-development is based.

The ***information-activity oriented component*** reflects the content of the educational process, methods, forms, technologies and means of forming future agrarians' readiness for vocational personality self-development.

The ***diagnostic component*** presents the criteria, indicators and levels of future agrarians' readiness for vocational personality self-development.

The ***efficient component*** has shown the positive dynamics of future agrarians' readiness for vocational personality self-development. This unit reveals the final result of the implementation of the system of forming future agrarians' readiness for vocational personality self-development on the basis of the proposed model and provides feedback in the management of the process of forming the phenomenon taking into account the social demand, the purpose, the ability to modify the content, teaching methods, forms, tools and technologies.

Pedagogical conditions perform a unifying function, which ensures the efficiency of forming future agrarians' readiness for vocational personality self-development on the basis of the proposed model. The pedagogical conditions include stimulation of motivation for vocational personality self-development; ensuring the focus of the educational process on forming future agrarians' readiness for vocational personality self-development; the use of information technology resources to form future agrarians' readiness for vocational personality self-development. The choice of these pedagogical conditions is made according to the thorough assessments and considerations.

Motivation is the most important component of effective human activity. It depends on how successfully specialist perform their work and goals set in the production, scientists note that motivation can compensate for certain shortcomings in forming some professionally vital qualities, but lack of motivation is almost impossible to compensate. Vocational personality motivation should be considered as a process of stimulating yourself and other people to achieve certain professional and personal successes. Vocational personality motivation is also understood as the action of specific motives that influence the choice of profession and the long-term fulfilment of duties associated with the profession, a certain social behaviour of a person.

Motivation is formed under the influence of environmental factors and corresponding personal needs of a person [15]. In the psychological-pedagogical literature the following factors related to the motivational sphere of personality are mostly distinguished [38, 45, 63]: 1) the specifics of the motives underlying the activity and the dominance of internal cognitive motivation; 2) peculiarities of determining the goal: the ability to set adequate goals (clear, specific, realistic) and achieve them (plan activities, take it without hesitation); 3) peculiarities of setting and implementing personal goals (ability to concentrate on the task, work hard, without being distracted and bringing the matter to an end); 4) peculiarities of ideas about means and strategies for achieving a successful result (control of conditions of activity, perseverance in search of the necessary information, etc.); 5) adaptive, cognitive, behavioural and emotional peculiarities of responding to situations of failure, obstacles and difficulties arising in the course of activity (ability to overcome difficulties).

An important statement for the development of the methodology of vocational personality self-development is also the following: motivation acts not only a factor of creative activity, but it also changes in the course of work depending on its nature. Ensuring the focus of the educational process on forming future agrarians' readiness for vocational personality

self-development is justified by the results of a diagnostic analysis of the state of students' vocational personality self-development while attending university.

During 2019–2021 a survey of teachers and lecturers of Vinnytsia National Agrarian University and Ternopil Volodymyr Hnatiuk National Pedagogical University was conducted. 128 and 134 respondents took part in the survey, respectively. The interviewed questionnaire contained questions about teachers' understanding of a student's need to be ready for vocational personality self-development, methods of vocational personality self-development, a teacher's readiness to provide students' vocational personality self-development. The results of the survey are given in table 4.1.

Table 4.1

Results of the Readiness of University Teacher to Form Students' Vocational Personality Self-Development

№	Questions	Affirmative response "Yes", %	Negative response "No", %	Vague response "I haven't decided yet", %
1	Is there a need to form students' readiness for vocational personality self-development deliberately?	100	-	-
2	Does the organisation of the educational process contribute to students' vocational personality self-development?	46	51	3,0
3	Are you familiar with the methods of forming students' vocational personality self-development?	29,0	46	25
4	Do you encourage students to vocational personality self-development deliberately at the university?	11	54	35
5	Do you think it is obligatory for a teacher to orient students towards vocational personality self-development?	38	49	13
6	Is the information environment of the university focused on students' vocational personality self-development?	34	51	15

Source: Compiled by the authors on the basis of the survey.

The results presented in table 4.1 show that teachers understand the importance of vocational personality self-development for a future specialist, but psychologically and methodically are not ready to form it its deliberately. The educational environment of universities is mostly focused on the content of information and educational nature in accordance with the course training programmes. The analysis of course training programmes has also shown a low level of orientation towards forming social skills, which are directly related to vocational personality self-development.

The use of information technology resource is considered as a prerequisite of forming future agrarians' readiness for vocational personality self-development. Therefore, to determine the possibilities of forming future agrarians' readiness for vocational personality self-development, it is important to research the potential of information technologies, find out the positive and negative consequences of their use and, on this basis, design well-balanced and effective methods. The implementation of modern information and communication technologies makes it possible to build the information and educational environment of HEIs as the system aimed at differentiation, individualisation and personification of training and, first of all importantly, at the development of subjects in the educational process. However, the modern university informational educational space faces the problem of the content of education, the ratio of traditional components of the educational process and new information-communication technologies, new forms of interaction between students and teachers.

Nowadays more and more researchers are paying attention to the dangerous psychological effects of information influences. These influences include changes in the mental and physiological state of people, which is expressed in the growth of mental tension, anxiety, etc.; reducing people's ability for self-determination, self-realisation, making vital decisions, or the emergence of character accents, deformation of motivational orientation; errors in the perception of information, which

causes a violation of the implementation of social functions and leads to distrust of information sources; increase in the frequency of risky socio-psychological situations [43, 75].

Practitioners note that the teacher's interaction with students using information systems is rather limited in time and has a formal role-playing nature during group classes, modules delivery, quick consultations, developments, passing tests and exams. Even with the use of powerful information platforms (Zoom and Google Hangouts, Talky, ezTalks Video Meetings have become the most common at Ukrainian universities), according to our surveys, 81% of students can recall only individual episodes of real dialogue and cooperation with the teacher in the mode of exchange of opinions, viewpoints, gained experience. This situation complicates the process of forming future agrarians' readiness for vocational personality self-development [43].

Another important aspect to consider while choosing methods for forming future agrarians' readiness for vocational personality self-development is the organisation of interpersonal interaction during training, for which, of course, the teacher is responsible. The teacher has to show the ability to work in the modern educational environment, which is the basis of the activities of any higher education institution. We are talking about the formal nature of communication and interaction, in which the teacher acts as a transmitter of information that teaches new material, explains, informs, gives examples, requires attention and discipline, organises joint activities, etc., but is not interested in forming a student as a future professional and socially developed personality.

In the conditions of the information-educational environment there is equal access to information for teachers and students, so it makes possible to ensure their cooperation, subjective attitudes, organise real dialogue and exchange ways of cognitive activity, meanings and values. The information-educational environment of a higher education institution should create conditions for the personification of educational communications and educational activities. This will be possible if you

adhere to a set of principles for realising the potential of the information-educational environment: activity and independence, accessibility, reflexivity, integration, interactivity, individualisation, redundancy, sensibility, versatility, updating, pedagogical expediency of applying the potential of the information-educational systems.

The analysis of psychological-pedagogical researches has confirmed that the educational process in the system of higher education has various organisational forms, which are implemented through the methods of educational interaction between the teacher and students. Scientists classify general organisational forms of training on: individual form of training – indirect communication of participants in the educational process; paired learning – communication of participants in the educational process in permanent pairs; group work – communication of participants in the educational process in a group, when each participant, who speaks, directs text (information) to several students at the same time; collective form of learning organisation – communication of participants in the educational process in a group, when communication takes place in pairs of different learners. Paired learning is the most common and traditional form of communication between two people, where one speaks and the other listens. The second form, frontal, where one speaks and the others listen. The third form of learning interaction is collective, based on the communication of different people in turn with each other, mainly in pairs. The fourth form is group work, which encompasses communicative actions of at least three or more participants within the group among themselves, between groups or a teacher. The group form includes work, for example, in small groups [1], which we choose while organising the project activities of students, which has significant potential to form future agrarians' readiness for vocational personality self-development.

Let us dwell on the potential of information technologies in forming future agrarians' readiness for vocational personality self-development, the diversity and range of which is impressive. According to the results of Top Tools for Learning 2020, the rankings of 200 best information platforms,

programmes and other tools for learning and development, workplace training and education [105] is presented. Each of these tools contributes to the organisation of the forms of training discussed above. Wide access, information exchange and operation by students cause interpersonal interaction during "plug-and-play" learning in the form of indirect communication and experimentation. This contributes to forms of unlimited educational interaction such as distance learning, electronic lectures, electronic discussions, teleforums, video debates, etc. Such expansion of the educational space, increasing the independence and responsibility of students for the results of their educational work in accordance with the instructions and recommendations of the teacher makes adjustments in the methods of communication, interpersonal contact of participants in the educational process, that is, their pedagogical interaction.

The process of pedagogical communication with the teacher should stimulate the student's desire to continue the dialogue in order to achieve a certain goal of a future agrarian's vocational personality self-development. The teacher also initiates discussions between students on the educational topic, which can take place in the form of forums, conferences, chat-discussions, etc. on the issue of vocational personality self-development. A key goal of the teacher in the process of interaction with students is to provide an opportunity for each of the participants in the educational process to ask questions, as well as to offer their comments, questions or comments in response. However, a dialogue as a partnership can take place not only with the teacher, but also with other participants in the educational process. Exchange of learning experience, participation in video conferences, discussions, e-mail correspondence – all this develops the student's universal communication skills and contributes to a future agrarian's vocational personality self-development [9].

It has been established that the model of interaction, embedded in the educational process, becomes for the student a prototype of relationships that are built in professional activities. Therefore, in training students at

higher education institutions it already is necessary to prepare them for cooperation, to form their mental compatibility, communication skills and ability to work in a team, to be persistent in achieving the goal.

In this sense is the tendency to dialogue and reflexivity is of great importance for organising the pedagogical interaction. This can be implemented in practice through the introduction of education (including distance learning), which involves both a direct and indirect form of pedagogical interaction and makes lifelong learning possible.

In case of a justified organisation of the educational process the potential of information environments allow: ensuring the unity of classroom and extracurricular work (group, independent, individual, etc.); implement effective interaction of learning subjects in real time through: creating a task for each specific course and group with hyperlinks to multimedia content; editing and commenting on the status of tasks by students; combining individual tasks into thematic modules; publication of announcements, questions, information digests, etc.; control over the individual performance of tasks by students both in classroom and out-class; setting deadlines for each task; commenting on the revised multimedia content offered for tasks; assessment of students' academic achievements; copying academic achievements to Google Sheets to create statistical reports and to monitor the quality of learning. In the conditions of the information society there is a significant potential for interaction of all subjects of education ("student – student", "student – student group", "teacher – student", "teacher – student group") not only in university educational environments, but also with the use of the latest socially oriented tools, the most common of are the following:

Platforms for video conferences: Zoom, Google Meet, Whereby, Cisco Webex, Adobe Connect, Jitsi Meet, WebinarGeek, BlueJeans, GoBrunch.

Social networks: Facebook, Google+ & Hangouts, Twitter, LinkedIn, Yammer.

Web-resources: YouTube, Wikipedia, Audible, kindle, TED Talks, Netflix, getAbstract, Spotify, Quora, Slideshare.

Platforms for cooperation: Slack, Padlet, Workplace from Facebook, ClickUp, Asana.

Content Creation Tools: Canva, Camtasia, Snagit, Screencast-O-matic, Vyond, H5P [105].

Information technologies should be considered not only as convenient tools to implement educational activities, but also to create modern environments for the organisation of joint interaction of all participants in the educational process, overcoming formal communication, expanding the comprehensive development of the future graduate of a higher education institution. In the foreground of the proposed model of forming future agrarians' readiness for vocational personality self-development is a student with needs and individual traits, which causes the choice of adequate teaching methods, forms and tools.

The efficiently-evaluative component of this model provides for mandatory pedagogical monitoring, which consists of collecting, storing, processing the information about students' activities and outcome evaluation.

4.3 Technologies of Forming Future Agrarians' Readiness for Vocational Personality Self-Development

The most common approach to the interpretation of technologies in scientific research is the definition of technology as a procedure or sequence of cognitive and transformative actions, operations and influences that are implemented in the process of studying the subject and aimed at solving research problems. Modern information technologies provide a unique opportunity to receive e-learning, online education, communicate with interesting people from all over the world, declare themselves as a specialist and personality, get an assessment of their activities, improve and engage in self-education and self-development.

One of the instruments of ICT in the process of vocational personality self-development is the electronic portfolio.

The notion of “portfolio” came from Western Europe of XV-XVI centuries. In the Renaissance architects presented customers with ready-made works and drawing of their construction projects in a special folder called the “portfolio”. The documents presented in this folder made it possible to give an impression of the professional qualities of the applicant.

The idea of applying the portfolio in educational practice arose in the 80s in the United States pedagogical universities of South Carolina, Oregon, Massachusetts and New Hampshire. The portfolio has become a popular idea in Europe and Japan. Today the problems of using the advantages of the electronic portfolio (web portfolio, E-Folio) in the educational process are actively considered by Ukrainian researchers (N. Bakhmat, Yu. Bozhko, V. Bublyk, M. Hlybovets, O. Koren, M. Vechirko, S. Its).

Initially, the portfolio was not electronic, but most often acted in the form of a folder with documents, and then in the form of an electronic collection of developments stored on a PC or other data carriers. With the development of web technologies, a web portfolio came to change the electronic portfolio, since web systems can store, modify and export information of almost any type (text, video, audio). Taking into account these facts, today the difference between an electronic portfolio and a web portfolio is gradually disappearing, with electronic portfolios increasingly associated with a web portfolio. This is a logical and strategically correct direction for the development of such systems.

Having generalized viewpoints on the interpretation of the teacher’s portfolio we can present them as follows:

✓tools (instrument, method, form) evaluation of the efficiency (effectiveness) of in measures of time and complex activity;

✓collection of samples of works and documents confirming the results of the activity and illustrating the opportunities and achievements

of the portfolio owner;

✓a set of materials that, in accordance with the goal, systematise and illustrate the process of continuous self-esteem and correction of results and achievements;

✓technology of self-development and self-improvement;

✓tools of motivation and stimulation of creative activity and self-education;

✓tools of self-presentation and career growth;

✓demonstration of achievements in management and pedagogical activities;

✓tools of monitoring and evaluation of professional development;

✓a collection of documentary materials (certificates, reports, protocols, publications, abstracts, term papers and diploma works, dissertations, normative documents, photo, film, video, audio materials in paper and electronic forms) formalised and specialised in a proper way.

In foreign literature, the portfolio is defined as a collection of works and personality results, demonstrating its efforts, progress and achievements in various fields [102]. The basic ideas of the portfolio were implemented in many projects, such as ePortfolio, Blackboard, Moodle, Mahara and others. The most important and valuable contribution was made in 2002 by the IMS Global Learning Consortium to develop the portfolio specification. To support the implementation of EP, the European Institute of Distance Education in 2005 created the Europortfolio Consortium, which aims at transforming modern views on educational technologies. It brings together many European universities and organisations, and holds international conferences on EP.

With the development of information technologies and services, Web 2.0 reoriented the electronic portfolio to a qualitatively new level. More and more in the scientific literature there is the term “web portfolio”, based on hypertext technologies that allow implementing links between cross-reference components. In modern scientific works, web-portfolio in the media education space of a higher educational institution of education is

given a general definition of the electronic portfolio as personalised online collections of works by a certain author (individual, group, organisation) and related comments (both the author himself and others) and assessments [104; 107].

Foreign researchers (H. Barrett, Ph. Butler, R. Beck, D. William, N. Reith) interpret the electronic portfolio as a general term for structured collection of their own or jointly created digital artifacts, recognitions and accreditations, when the owner has enough freedom to organize their presentation in accordance with specific goals and audiences. Scientists and practitioners emphasize that reflection is one of the value characteristics of the electronic portfolio, because the processes of planning, synthesis, exchange, discussion, reflection, provision, receipt of information and response to feedback are at the heart of the portfolio.

The electronic portfolio in Ph. Butler's research is considered as an electronic set of testimonies (artifacts) that demonstrate the educational path of the individual. The portfolio can be related to specific areas of education or lifelong learning. Artifacts may include photographs, videos and research projects, observations by mentors and colleagues, and reflexive conclusions. A key aspect of the electronic portfolio is a reflexive reflection of personality, as shown by a study of Ph. Butler's work "Review of the Literature on Portfolios and ePortfolios", written in 2006.

Karen Y. Barnstable (in 2010) has released a large series of blog posts about the possibilities and benefits of working with an electronic portfolio in terms of the process and product for students, educators, employers or corporate companies [here's a link to a location on the web: https://kbarnstable.wordpress.com]. The advantages that teachers can count on in the process of working on an electronic portfolio will be partially considered: the opportunity to more fully studying their own personality, knowledge, skills; assessment of own strengths and interests, which allow discovering career opportunities, documenting lifelong learning experience.

The teacher's electronic portfolio as a product will provide: actual confirmation of formal and informal training; demonstration of professional growth and readiness for further self-development; a tool for assessing your own strengths and / or weaknesses, which will help to make decisions on further vocational development, availability of clear data that will help assess the results of previous training and plan further development; professional dossier for finding a new job, promoting a career ladder, participating in various projects.

One of the powerful goals for which the electron portfolio serves is the management of career development of education workers, since the electronic portfolio is an effective work environment that offers flexible conditions for a specialist's vocational personality development in the 21st century.

Work with an electronic portfolio can provide a permanent personal learning environment (PLE – Personal Learning Environment), in which people will be able to develop and manage the personality's self-analysis (strengths, weaknesses, opportunities, threats), while collaborating within their personal learning network (PLN – Personal Learning Network) using new personal training programmes and social networking tools. P. Shaikh develops a provision on the reflexive functions of the electronic portfolio, in the development of which it is necessary to answer the questions: "What are my strengths?", "What are my values?", "What steps should I take?"

The analysis of literature and practical developments on the use of the electronic portfolio by pedagogical staff allowed highlighting its following functions (Fig. 4.2):

Diagnostic function. The portfolio is able to show the entire educational (educational, educational, developing) and scientific potential of the teacher. This function of the portfolio will allow you to record changes over a certain period of time, show both positive dynamics and areas of activity which still need to be improved.

Informative function. The electronic portfolio allows you to systematise all the achievements of the teacher (publications, original

presentations, video materials, audio recordings, author's programmes, methodical materials, examples of tasks, etc.).

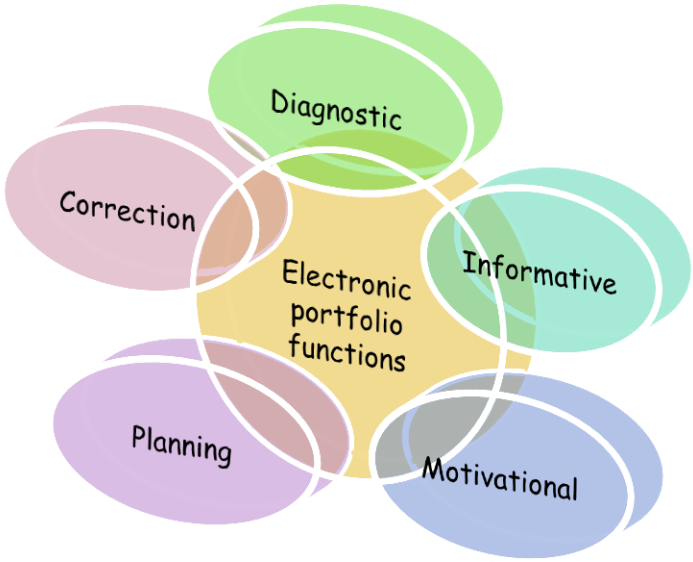

Fig. 4.2 Electronic Portfolio Functions

Source: Compiled by the authors on the basis of the processed sources [25; 104].

Motivational function is related to evaluation results of the professional activity, communication with colleagues, acquaintance with the achievements of other teachers motivates students to engage in vocational personality self-development;

Planning function – working on a portfolio stimulates the teacher to form a specific professional or personal goal, breaks it down into tasks which involve planning and developing specific tasks, an action plan);

Correction function of the electronic portfolio provides the independent evaluation results of the vocational activity and getting feedback, outlining the prospects for further work and adjusts your activities. Summarising the researchers' views on the functions of the electronic portfolio, Professor Helen Barrett, one of the most prominent experts in the field of electronic portfolios, highlights the following levels (Fig. 4.3, Fig. 4.4, Fig. 4.5) of implementation of electronic portfolios:

- ✓ the electronic portfolio as collection and storage of artifacts;
- ✓ the electronic portfolio as a workspace / process;
- ✓ the electronic portfolio as a showcase / product.

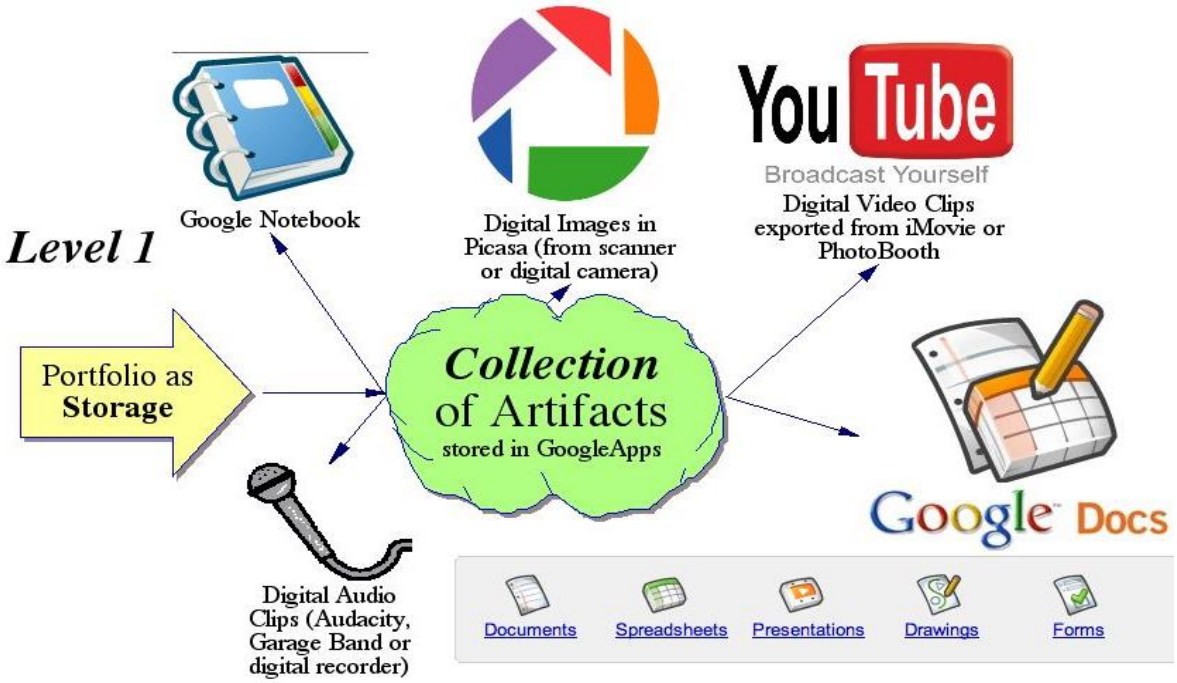

Fig. 4.3 Electronic Portfolio as Storage

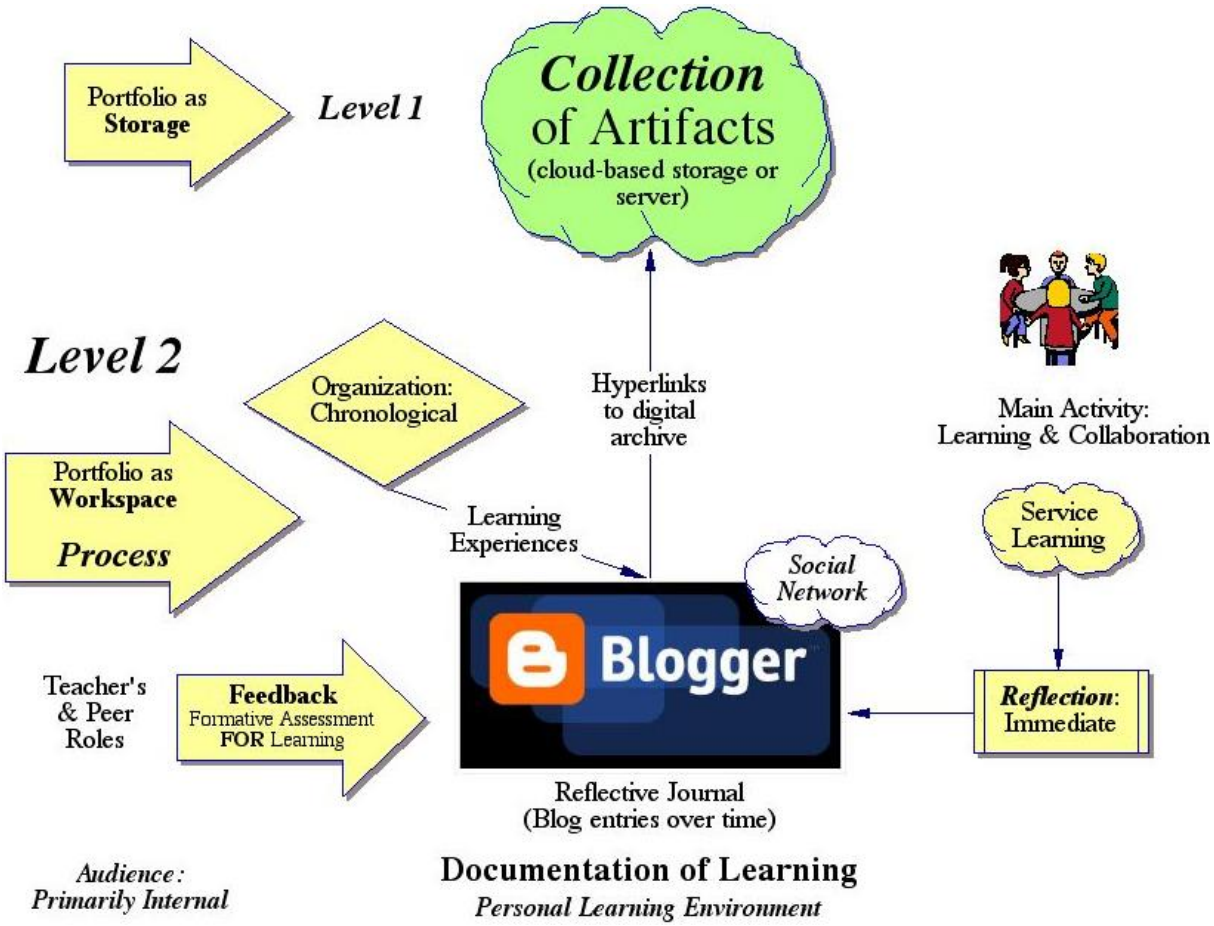

Fig. 4.4 Electronic Portfolio as a Workspace

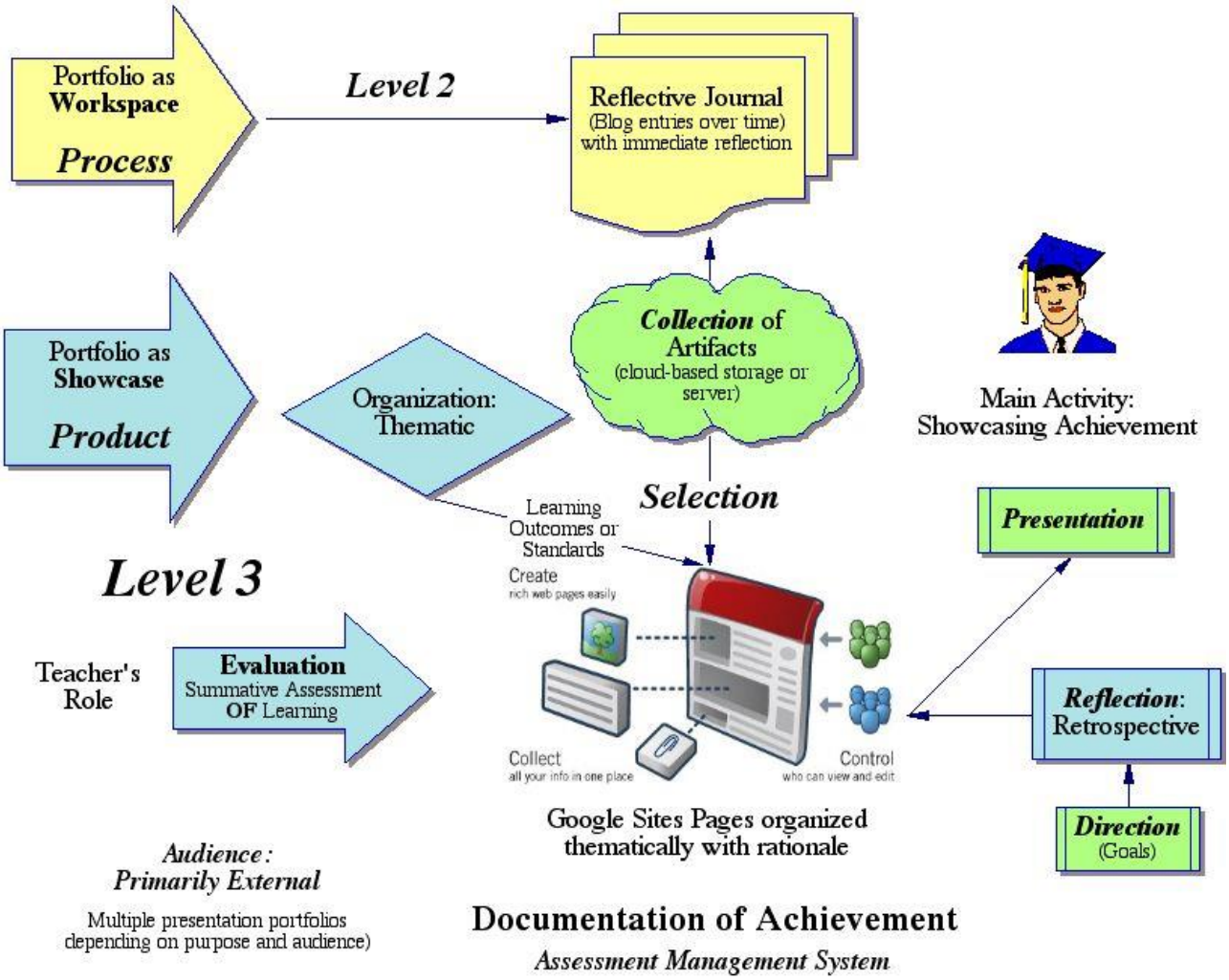

Fig. 4.5 Electronic Portfolio as a Showcase

Today many researchers and practitioners tend to consider the "portfolio website" (electronic portfolio) as a response to fundamental shifts in the modern educational space, where learning is no longer perceived as a formal process of knowledge transfer, but as a process aimed at focusing a person on the independent development of relevant knowledge throughout life. This type of portfolio is an opportunity for independent reflection on the learning process, presentation of own educational and professional knowledge or competencies acquired by the owner.

A portfolio website is an innovative technology characterised by: hypertext construction of a web resource, which allows you to implement the relationship between the components of the portfolio model most clearly in the form of cross-references; structure, openness, platform

independence, portability and flexibility of web resources that allow you to modify web resources, conduct search and comparative analysis and build various content visualizations (PivotTables, diagrams, etc.); communicative orientation of web resources [25].

In addition to these advantages, the electronic portfolio has a wide range of functionalities:

✓uploading a large volume of material of various formats (text, graphics, audio, video);

✓access to materials anytime and anywhere (if you have a connection to the Internet),

✓prompt replenishment and editing of the material;

✓feedback, exchange of experience with a huge audience (after all, if desired, the portfolio materials will be available to all users of the Internet).

The form of the electronic portfolio displays information about the personality and professional activity of a pedagogue. The electronic portfolio records the dynamics of changes in the quality of professional activity, focuses the pedagogue on self-assessment, self-realisation and self-expression, analyses results and achievements, which makes it an indispensable and unique tool for vocational personality self-development. Consider the stages of work and the structure of the electronic portfolio of a pedagogue's vocational personality self-development. The electronic portfolio of a future specialist's vocational personality self-development should include some components and characteristics (Table 4.2).

The proposed structure is indicative, because on one hand the portfolio of vocational personality self-development is a way to evaluate the professional growth of a specialist, and on the other hand, technology that provides a harmonious combination of self-development of the individual and its self-realisation in the process of increasing professionalism. Such a portfolio is very individual, because it depends on the purpose, goals, vocational competence and personal characteristics of the future agrarian. There is no generally accepted model of the electronic

portfolio. When it is developed and created, specialists have the right to show their own creativity.

Table 4.2

Contents of the Electronic Portfolio

Components	Characteristics
Personal information Achievement	CV, goals of the portfolio, philosophy of life, pedagogical credo, list of competencies –the formed ones and those which need improvement
Education and credentials	diplomas, certificates, acknowledgements, awards – the actual confirmation of the results
Scientific publications	outline the range of scientific interests, including electronic formats of scientific papers, a list of published works
Methodical works	author's materials as a result of work in the methodical association (department), cooperation with the scientific-methodical centre, institutions of postgraduate education, participation in professional and creative pedagogical competitions; organisation of open lessons, seminars, round tables, master classes, development of methodical literature for training courses, educational programmes o
Strategy of vocational personality self-development	Self-concept of a future specialist, comparing the real and the ideal, creating a portrait of the ideal professional, identifying strengths and weaknesses of the individual and the positive and negative aspects of vocational activities, goal setting, development of specific tasks, planning self-development activities with deadlines and methods, results of self-control and correction, characteristics of forms of self-analysis and reflection
Useful tools	list of online services, educational platforms, mass open online courses, interesting blogs, links to relevant information that will be useful in the process of vocational personality self-development
Educational materials focused on pupils, students and colleagues	electronic textbooks, video and audio materials, collections of tasks, training cards - all that will ensure effective mastery of subjects, which provides vocational activities.

Creating and filling an electronic portfolio of vocational personality self-development, a professional needs the ability to model and project his / her professional activity, self-education, self-development as a person; take into account psychological and pedagogical, social requirements for the vocational competence of the modern agrarian; ergonomic requirements (convenience for a person in the process); design requirements (colour design, font size and graphic objects); software and technological requirements for the electronic portfolio; have formed reflexive skills, adequate self-esteem and readiness for self-regulatory activity.

Filling the content of the electronic portfolio should be guided by such principles of didactics as science, consistency, clarity, interactivity, focus on independent activities, but also forget about creativity and creative approach. Although the structure of the electronic portfolio of vocational personality self-development is quite individual, in order to obtain an effective result of work, all components (self-knowledge, self-education, self-control, self-realisation) and the algorithm of implementation (self-knowledge, construction of the "Self-concept" → development of a strategy of vocational personality self-development → the actual implementation → self-control and correction) of this process should be reflected in the portfolio.

Before starting work on an electronic portfolio of vocational personality self-development, a specialist must do the following:

✓clearly understand the purpose, goals of portfolio development;

✓conduct critical self-analysis of his / her own personality, objectively analyse the professionalism;

✓develop a detailed strategy for vocational personality self-development;

✓systematise your achievements, artifacts;

✓choose a technological solution for the implementation of the electronic portfolio project.

An electronic portfolio can be technologically presented in the form of a website, blog or on a specially designed platform for the portfolio.

On the Internet you can find many platforms that offer to place an electronic portfolio. Ukrainian researchers Yu. Bozhko, V. Bublyk, M. Hlybovets, O. Koren have reviewed and analysed the most common online platforms, identified advantages and disadvantages in use, consider the most optimal options for placing an electronic portfolio:

ePortfolio is a system of author's creation of electronic training portfolios with online provision of educational materials. The system provides custom templates that can be edited. To improve the rating, it can be combined with a rubricator that will support the creation and aggregation of data headings performed by many appraisers. Users can safely share portfolio data with peers, groups or external recipients of e-mail. The platform provides individual, team and system tracking, analysis and reporting on educational activities and its results. The system is intended for use by higher education institutions, schools, government agencies and the business sector. It has communication tools such as discussions, e-mails and chats; but does not support blogs, Wikipedia, or a message board.

Moofolio is a Moodle module that provides a platform for collecting and pondering portfolio artifacts. The portfolio is not a separate application and is available from anywhere inside the Moodle system. We describe some properties of Moofolio. Artifacts can be loaded in three ways: by linking to an existing written task in Moodle, entering an artifact directly through the Moodle screen, uploading a file of any type to Moofolio. The platform supports the student and teacher's reasoning for all artifacts, but students cannot edit the teacher's statements. It provides such search opportunities for students, disciplines, artifact names, keywords, and dates. Students can change the background, colours, fonts, etc. The maximum size of files to download is determined by the server administrator. Test grades can be downloaded from tables by the administrator and can be viewed by students or teachers. Artifacts can be

closed by teachers. File Cabinet (formerly known as FileKeeper) is part of the Moofolio module, but can optionally be used separately. The Express Yourself tab allows students to choose the format and appearance of the portfolio. Moofolio is an open source product and freely distributed online

Mahara is a complete, open source product that includes an e-portfolio, a web blog, a resume wizard, and a social networking system that connects users to online communities. Mahara is designed to provide users with tools to demonstrate to the target audience the learning process, gradual acquisition of skills and development throughout life. Mahara's most important feature is representation. As they say, "How Mahara differs from other electronic portfolio systems is that you can control what exactly and what information (artifacts) other users can see in your portfolio". All portfolio artifacts that the portfolio owner seeks to show to other users must be collected and placed in one place. This collection of artifacts is called representation. Views can be created as much as necessary, each with its own collection of artifacts, its purpose and target audience. You can add the target audience or people who would like to access this view alone or as a group or community. Mahara contains a file repository that allows users to create directories and subdirectories; download multiple files quickly and efficiently; name files and give each file a description; set restrictions on the uploaded files, users must agree to a configurable copyright notice. Mahara provides a social networking platform where users can create and manage a list of friends added to the system. E-Portfolio owners decide whether other users can add them to their friend lists automatically or by application and approval.

The e-Portfolio user's friend list indicates to which views they have access. Mahara also contains a resume wizard (résumé builder) that allows users to create resumes by filling in various possible fields with relevant information. Mahara provides an easy-to-mastering blogging tool in which blogs and blog comments are considered artifacts and can be added to some presentation (for example, "Computer technologies"). Administrators can change Mahara through a number of configuration

options, including: language packs and themes, virus protocols, the limits of the duration of the working session and account, authentication methods, installation and configuration of the institution, master page editor, editor of the main menu. Besides adding modules to Mahara, artifacts can be configured, turned on or off according to your organisation's requirements. Mahara provides a single-sign that allows users, with administrator permission, to log in automatically to both Mahara and Moodle accounts at the same time when the user logins to at least one of them. Mahara is distributed free of charge as an open source software (under the GNU General Public License).

You can create a portfolio as a blog using ***Blogger*** (www.blogger.com), ***Livejournal*** (www.livejournal.com), ***Blog.Net.Ua*** (http://blog.net.ua).

"Web log" means "online journal or event diary"). A blog is a website whose main content is recordings, images or media. Blog posts can be commented on and discussed with the author.

The first blog is considered a web page by Tim Berners-Lee, where he has been published news since 1992. So blogging began in 1996. In August of 1999 "Pyra Labs" created the website Blogger. It was the first free blogging service. Then Blogger was bought out by Google. This service is a subsidiary of Google, so if you have a Google account, you will not need to create a new account, but simply log in with Google data. Conversely, if you create an account on Blogger, you automatically get a Google account. The service is fully compatible with other Google products – Picasa Web Albums, Google Data API support, uses drag&drop when setting up the page. Today Blogger is gaining more and more followers thanks to its intuitive interface, a wide range of functionality. The created blog is presented in Fig. 4.6. The writer's workspace allows you to view statistics, comments, change the layout, theme of design (see Fig. 4.7).

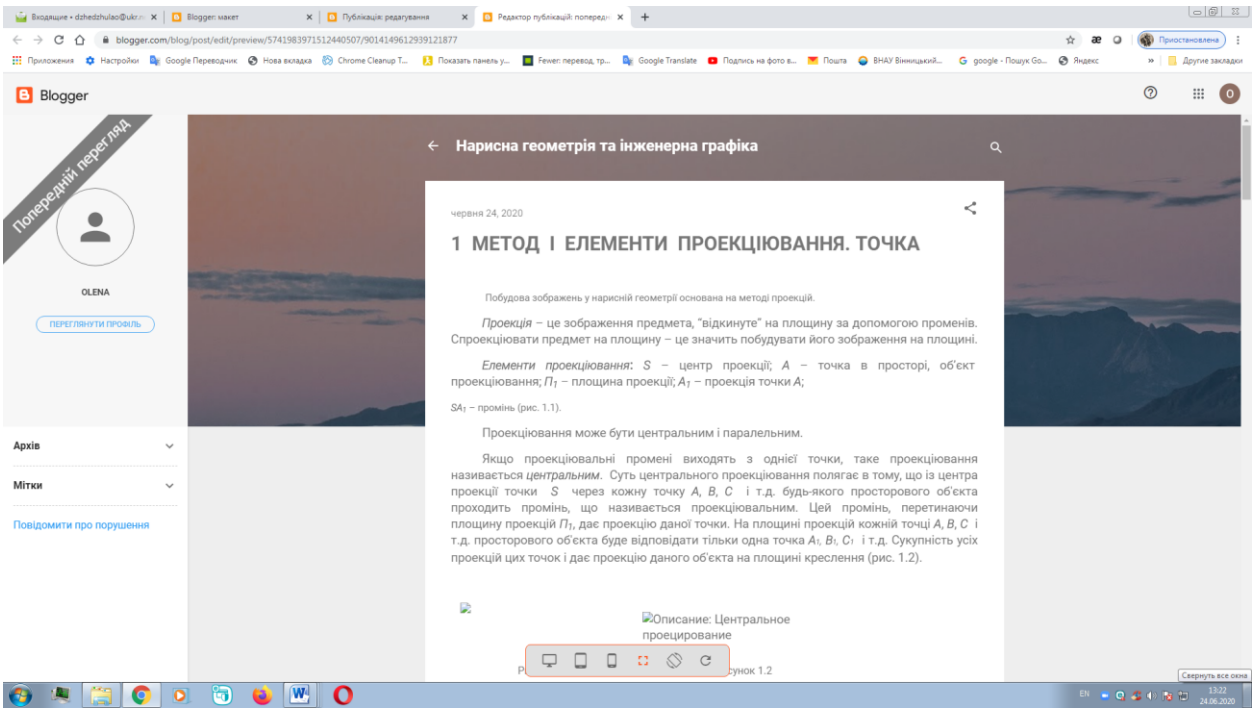

Fig. 4.6 Interface of the Blog "Descriptive Geometry and Engineering Graphics" (created by Dzhedzhula O. M.)

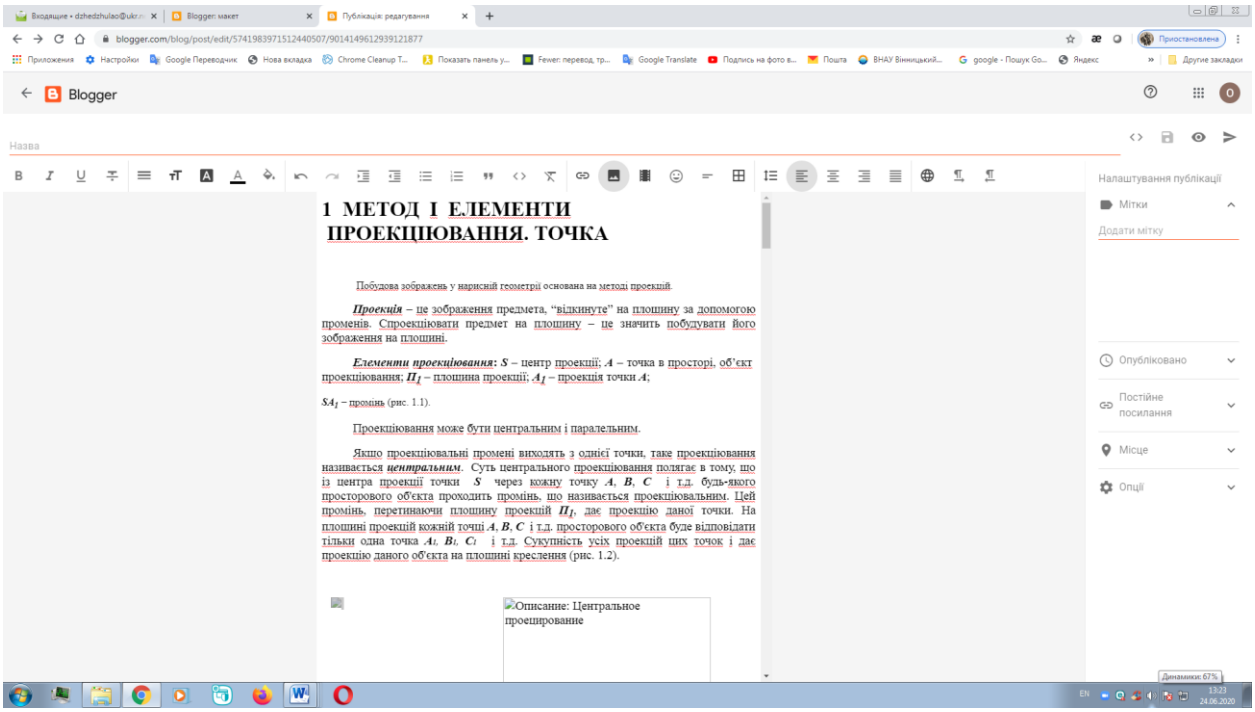

Fig. 4.7 Sample of the Taskbar

A website portfolio can be created using a builder's website with free Hostinger hosting (www.hostinger.com.ua); uCoz (www.ucoz.ua), Google Sites (https://sites.google.com).

Having a registered google account, storing information on Google, estimating the advantages of creating sites on Google (creating a site resembles the process of document design in a text editor, you do not need knowledge of the computer language of hypertext pages, there is also the ability to work on several users' site, use and add information from various Google services to the site) we have developed portfolio of vocational personality self-development, we have opted for this service (this blog developed in compatible with postgraduate of Vinnytsia National Agrarian University M. Necheporenko) (Fig. 4.8).

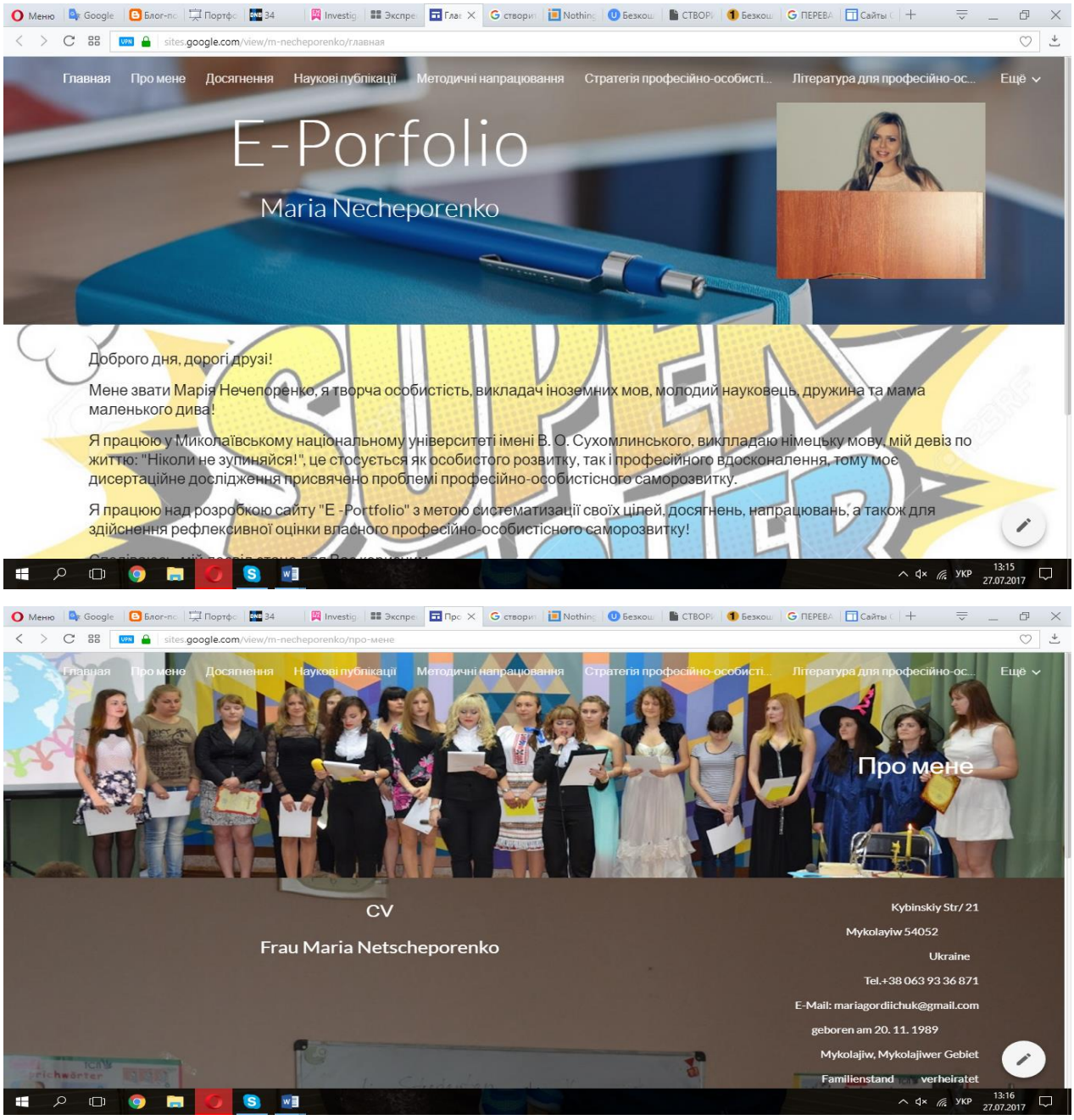

Fig. 4.7 Sample of the Author's Blog

Source: https://sites.google.com/view/m-necheporenko.

M. Necheporenko's portfolio of vocational personality self-development consists of ten sections (Fig. 4.8).

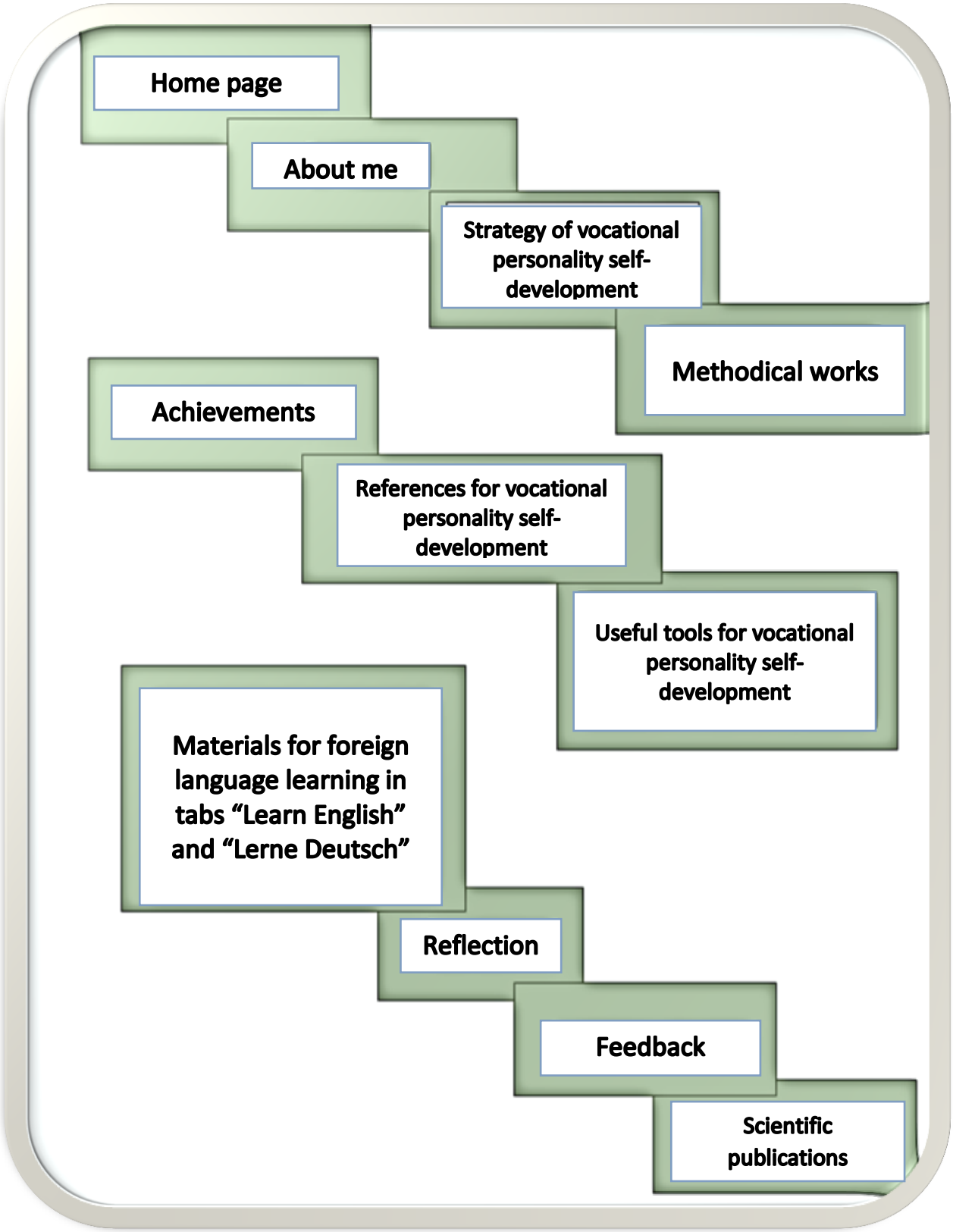

Fig. 4.8 Sample of the Portfolio Website

Source: Compiled by the authors on the basis of the processed sources [25].

Moreover, the site contains an invitation to visit the author's blog "Teacher – Professional and Comprehensively Developed Personality", devoted to current trends in the development of education in Ukraine and abroad, the peculiarities of the personality and competencies of the teacher of the XXI century, various aspects of vocational personality self-development. Blog posts are published in Ukrainian, German and English (http://mariagordiichuk.blogspot.com).

Working with an electronic portfolio in the process of vocational personality self-development allows you to develop the skills of reflexive and evaluation activities, self-assessment of your personal characteristics, helps to record various achievements, intermediate and final results of various types of self-education activities, plan and evaluate the efficiency of your own activities.

The electronic portfolio motivates to improve the level of professional competence, stimulates the search for real ways to implement a strategy of professional personal self-development, helps to plan, track and adjust the educational and career trajectory of vocational self-development. Thus, the electronic portfolio is one of the most powerful tools of self-diagnostics, self-organisation, presentation of results and adjustment of future agrarians' professional and personal growth.

In forming future agrarians' readiness for vocational personality self-development we distinguish three components: motivational-value, cognitive-creative, efficiently-evaluative. Therefore, when designing the methodology of forming readiness for vocational personality self-development, the purpose was to form each of the components, taking into account the potential of information technologies.

Motivation and the presence of a clearly defined goal encourage a person to actively target activities. Understanding the motives and the level of their awareness reflect the way students respond to certain situations in interpersonal interaction. This can be a thoughtful or spontaneous action. Since motivation and targeting are derived from the ratio of human actions and the reasons that cause them, we base the

formation of the motivational-value component on purposeful analytical activities, namely, the student's SWOT analysis of the culture of interpersonal interaction. The SWOT analysis was developed by Harvard Professors Edmund P. Learned, Roland C. Christensen, Kenneth R. Andrews, which allows you to structure knowledge about the current situation and trends: Strengths; Weaknesses; Opportunities; Threats [15]. Although traditionally SWOT analysis is used for effective business management, recently it has been increasingly used in various fields, including for the study of various pedagogical phenomena.

Students are invited to conduct their own SWOT analysis on the impact of existing skills, personality traits, and skills on interpersonal interaction. An example of one of the sheets of SWOT analysis of student X is presented in Fig.4.3.

Table 4.3

SWOT Analysis of Student X's Sheet

S – Strengths	**W – Weaknesses**
I am quickly learning to work with different software products and gadgets. I g easily make new friends via the Internet. I am interested in various events which take place at the university and I often participate in them. I can talk about something emotionally. I think I have good diction. I can use humour in a conversation. In my opinion, I am not greedy. I never tell other people about my problems.	I spend much time on social networks without a specific purpose. I have a bad memory. I always choose "remind me" on the Internet. My acquaintances are often short-lived. I can't manage my time. I do not like to listen to other people's comments. I often use clichés. I cannot listen to the conversation till the end. I am rarely interested in another person's opinion
O – Opportunities	**T – Threats**
Be a leader in the team. Build a professional career.	They may not trust me. I may not be perceived as a reliable person. I may have few friends.

A SWOT analysis is carried out with students during curatorial hours. Letters are not signed, so when discussing, students do not have

psychological discomfort. In SWOT analysis, students evaluate the importance of choosing a behaviour model during communication, the importance of accurate expression of one's own opinion, understanding another person's feelings, respecting and respecting each other and the role of interpersonal interaction in the life of a modern person.

Curators of student groups play a special role in shaping their readiness for professional personal self-development, because they have a longer time to observe students both during classes and in an informal setting. During the experimental work, the curators of the groups not only monitored the course of the formation of this phenomenon, but also were involved in the implementation of the methodology. Thus, at the preparatory stage for project activities in order to form students' teamwork skills, the curators of groups conduct a psychological role-playing game "De Bono's Six Thinking Hats".

The idea of the method is to teach you to divide thinking into six clearly defined functions and perform relevant roles. Each function and role corresponds to a symbolic "thinking hat" of a certain colour. Mentally, putting on and changing "hats", a person considers the problem from different points of view, redirects the course of thought. The "Six Thinking Hats" method disciplines and improves the efficiency of teamwork as a result of: minimising unproductive interaction and behaviour; the use of parallel thinking to generate the best ideas; reducing the time at the meeting; reducing conflicts between project participants; stimulation of innovations; search for unconventional alternative solutions; Finding opportunities where others see only the problem; clear and objective thinking; Assessing a problem from a different perspective comprehensive consideration of the situation.

The "Six Thinking Hats" method develops leadership qualities; increases team productivity, consistency and communication; promotes creative and innovative thinking, forms the ability to make joint decisions. Therefore, it is promising to establish effective interpersonal interaction between students in the implementation of projects.

The algorithm for using the Six Thinking Hats method using a presentation (Appendix A) in our experiment is as follows:

1) Students get acquainted with the idea of the Six Thinking Hats method and its author Edward de Bono (Appendix A, Slide 1).

2) The functions of each of the six hats are studied (Appendix A, Slide 2).

3) Slide 3 (Appendix A) visualises the idea of six hats and focuses on the "meaningful content" of each hat.

4) A solution is put forward (Appendix A, Slide 4).

5) Students are divided into 6 teams. Each team solves the problem based on that thinking activity according to the chosen colour of the hat.

6) Discussion of the results of the game is brought.

Modern information tools allow simultaneous visualization of the presentation for the entire student group. The possibility of active participation of each participant during the game contributes to the establishment of communication and cohesion, in particular in the conditions of distance learning.

To form a cognitive and creative component of professionally personal self-development, we consider it expedient to use the potential of project activities. O. Lovka considers project activities as a specially organized joint activity of subjects of learning as part of small groups, aimed at solving a certain problem, the purpose of which is to obtain professional knowledge, skills and which culminates in the implementation of a real subjectively or objectively new practical result (product) [34, p. 20]. The potential of project activities for the formation of professionally personal self-development of students is that it requires the definition of a common goal, coordination of methods and methods of activity, collective orientation to a certain result. The method of projects as a pedagogical system performs not only didactic, cognitive, developmental, educational, but also socializing functions that are specified in the implementation of the project.

The project method was implemented for students of the 1st year in the study of a foreign language. Cooperation between English teachers and group curators was organized. Since the project involves the development of a topic, ideas, detailed planning, finding and solving the problem, predicting the results and possible consequences of various options for their solution in the process of collective activity, the implementation of the project method consists of 3 stages.

The first stage (preparatory). At this stage, organizational issues are resolved. The student group is divided into project groups (4–5 people of their choice). In each group, a manager is elected. Project team members agree on the type of communication (as experience shows, Viber, Zoom, e-mail are most often selected). A schedule of meetings is being developed: the time of conferences in Zoom, the deadlines for sending completed project fragments. We consider this aspect important, since accuracy in the agreements is also one of the manifestations of a culture of interpersonal interaction. The rules of conduct in the implementation of the project are discussed (what is the role of the head, how to solve disputes, etc.).

The second stage (Work on the project). The project team chooses the topic from the proposed ones. Group members determine the timing of its implementation, distribute work on the project. The head of the group informs the teacher about the progress of the work. The role of the teacher at this stage is to provide observation, necessary advice on Issues in English, to provide psychological and pedagogical support to the project participants.

The third stage (Discussion stage). Students of all project groups are involved in this stage. Each group presents its own project, which is discussed and evaluated by all participants of the meeting. One of the conditions for the preparation of projects is proposals to overcome the problems associated with the culture of interpersonal interaction. During the discussion, students have the opportunity to find out the reasons and ways of overcoming them in their own interpersonal interaction. Therefore, the mandatory components of this stage are: holding a

discussion at a zoom conference organised by each project group; involvement in the discussion on the topic of participants of all project groups.

Since the student group is divided, as a rule, into 4–5 project groups, the number of conferences held at the discussion stage is also 4–5. It should be noted that projects are carried out and discussed in English, therefore, the potential of the "Foreign Language" discipline is also used to form a culture of interpersonal interaction. Topics for projects (Table 4.3) are developed taking into account the results of the analysis of the student survey on the problems of interpersonal interaction, so the projects are of interest to all students, forcing them to think about the reasons for their own failures and ways to overcome them.

Table 4.4

Topics of Projects Aimed at Forming Students Culture of Interpersonal Interaction

№	Topics of projects
1	How interpersonal conflicts arise in the team. Can they be overcome?
2	Interpersonal space in professional activities. Are there rules for its observance?
3	Nonverbal communication. Is it possible to convey your feelings in a non-verbal way?
4	Interpersonal intelligence. What is its value?
5	Interpersonal contact. Is this just a conversation?
6	Interpersonal tolerance. Do you need to consider other viewpoints?
7	5 reasons to prevent us from being friends.
8	Interpersonal attraction. How is it achieved?
9	Mechanisms of interpersonal perception.
10	Culture of communication. What is it manifested in?
11	How do interpersonal relationships affect social status?
12	Real and virtual communication.
13	Conflict situation in professional activity. Is a compromise possible?
14	How to form a common group opinion?
15	Interpersonal interaction and competitiveness of university graduates
16	Interpersonal attractiveness and unattractiveness
17	Is it possible to overcome destructive interpersonal relationships?
18	Interpersonal interaction in the information society.
19	Communication styles as a factor of successful interpersonal interaction
20	The role of intelligence in effective professional activity

The formation of an efficiently-evaluative component is based on the ability to analyse the efficiency of vocational personality self-development and appropriate adjustment of our own behaviour, the presence of formed skills to comply with social norms and values, takes place both in the process of analytical activity and in the process of project activities.

Another important method for forming vocational personality self-development is consider case technologies that are referred to as interactive teaching methods that allow both students and teachers to interact at the same time. Case methods – technologies are quite diverse. The potential of the case method is to promote the development of skills: to analyse situations; evaluate alternatives; choose the best solution; make a decision plan.

The high efficiency of the case method is due to the development of information structuring skills, the development of technologies for the development of organizational solutions of various types (strategic, tactical), actualisation and critical evaluation of the accumulated experience in the practice of decision-making, effective communication in the process of collective search and justification of the decision, destruction of stereotypes and stamps in the organisation of finding the right solution, stimulation of innovations through synergism of knowledge – development of system conceptual knowledge, increasing motivation to expand the base of theoretical knowledge to solve applied problems.

Case opportunities – technologies in the educational process are associated with increasing the motivation of learning among students, the development of intellectual skills that will be in demand with further training, in professional activities and social sphere.

The case method has a long history. It was first introduced in the 1870s at Harvard Law School (USA). However, the development of this method associated with business training (since the 1920s). Teachers in the training of specialists for business structures faced the fact that it was impossible to teach students how to do business exclusively through

lectures and textbooks. An alternative to the textbooks were interviews with leading entrepreneurs and top managers of companies and written on their basis detailed reports on how they solved a particular situation, as well as about the factors affecting their activities.

Since then, the analysis of business situations has become an important element in the training of future managers in business schools. Education at Harvard Business School (HBS) is almost entirely built on case analysis, and the school's library contains the largest collection of cases in the world. One of the internationally recognized case development leaders is HBS Professor Chris Christensen. Since Harvard Business School prioritizes the implementation of the case method, it is worth considering the ideas of developing cases from the positions of teachers of this school. The classic Harvard case is a large case (20–25 pages of the text, which additionally has 8–10 pages of illustrations and applications), where there is a main active person and a description of its history. The peculiarity of using the case method in HBS is the search for a single correct solution. It should be noted that not all supporters of this method adhere to the search for only one absolutely correct solution, allowing a certain variability of ways to overcome the problem, with which we also agree. There are other types of cases. For example, case history. The simplest educational cases or case history are designed to present a particular problem. They contain the wording of the problem, students are invited to answer a number of questions on the content of the case and give several options for solving the problem presented in it. These solutions may even be presented in the case itself, in which case students are asked to choose the most suitable option for the situation and justify their choice. The volume of such case stories is usually from 1–2 to 5–6 pages. Another type of case is mini-cases. This is a form of written knowledge control, which involves the reaction of students to the proposed and briefly described business situation. Students are asked to associate the situation with a specific topic or section of the academic discipline that is studied and commented on the behaviour of the persons in terms of this topic or

section, as well as to conclude or make recommendations. Usually the volume of the mini-case is within 0,5–1 page.

It should be noted that the case methods are not yet well understood, so they require wider research on the effectiveness of their implementation in the educational process. Scientists consider one of the significant shortcomings of this method to be the lack of sufficient empirical research and the high cost of developing this method and the significant time spent by the teacher to develop cases that may prevent practitioners from applying it. However, the most important reason for its use while forming future agrarians' readiness for vocational personality self-development is considered as the possibility of reproducing real life and professional situations and discussing various ways to solve them.

We consider the case method a unique educational approach for training future agrarians, in which students can familiarise themselves with the content of tests before class independently or under the guidance of a teacher, discuss their content, analyse the specifics of the professional situation and the reasons that contributed to its occurrence. It is important to determine the role of the teacher in solving a particular professional problem and its responsibility for its correct solution. All these are prompting moments for their self-education and self-development.

At the beginning of the development of case technology, it is advisable for the teacher to answer three questions:

- ✓ For whom and why is the case written?
- ✓ What should students learn?
- ✓ What conclusions will students draw from this?

The algorithm of the teacher's actions while using the case is the following technology:

1) create a case or use an existing one;

2) divide students into small groups (4–6 people);

3) acquaintance of students with a situation, the system of evaluating decisions, deadlines of solving tasks, the organisation of students' work of in small groups, choice of speakers;

4) present of decisions in small groups;

5) organise the general discussion;

6) hold a speech of the teacher, analyse the situation;

7) evaluate students' activities.

We always offer students to make an assessment when using case technologies. Adequate self-esteem is formed. The opinion of another person is taken into account, which helps resist stress in conflict situations.

After that, the process of creating a case will look like: the purpose of training; structuring of educational material; choice of organisational forms, methods and means of training.

The algorithm of the student's actions in training for work using the case method, we recommend the following:

Stage 1 – acquaintance with the situation, its peculiarities: to give an interpretation of explanations and materials related to the key moments of this professional situation.

Stage 2 – determining the main problem: to clarify what the problems are and what decisions need to be made.

Stage 3 – offering concepts or topics for brainstorming: to propose specific strategies for solving problems;

Stage 4 – analysis of the consequences of making a decision: compare and think about which strategies will be effective, while considering issues related to strategies and other circumstances of the educational process;

Stage 5 – the solution of the case: the proposal of one or more options for a sequence of actions, the creation of a case, the final decision.

A specific peculiarity of the case method, and therefore its fundamental difference from other teaching methods is that it is an educational approach designed to develop practical business skills through discussion and debates among students using materials created to achieve a certain educational goal. Unlike typical educational information, when using the case study method, the teacher may deal with facts that may differ from typical educational events (especially if this is due to the student's behaviour, his psychological state, etc.), and instead of using

typical approaches to solve a difficult situation, you need to develop your own ideas, have the courage to offer innovations, but proving their legitimacy.

Studying the problem laid down in a particular case is actually a case study, a way to study articles and other materials aimed at studying the problem. Students study the relevant scientific pedagogical literature, analysis and interpretation of similar pedagogical situations. The training materials are based on facts (actual events) and determine certain learning points in the case. We also involve students in case development. The author (student or teacher) provides interpretive materials to help students understand the essence of the situation, so students actively analyse the essence of the situation.

Joint discussion of the content of the case is an important step in this method, as students learn to respect each other's views and collaborate on developing a point of view that contributes to the right decision. Classes are very collaborative, increasing the effectiveness of education through the learning community.

We have developed 54 cases for postgraduates and students of the specialty "Vocational Education (Industrial Engineering)" in the form of video materials with various pedagogical situations related to the organisation of the training session, the curator's work with students, behavioural situations of students, etc. The peculiarity of preparing cases is the involvement of postgraduate students (in the study of the discipline "Teaching Methods at Higher Education Institution") and students in the development and direct participation in shooting videos. This allows students to form practical decision-making skills that cannot be achieved by unilaterally reading general information and theory. Students develop the ability to apply knowledge systematically in various aspects of the educational process, develop strong leadership qualities and a sense of responsibility in pedagogical activities, combining practical skills with theory.

When using the case method, the teacher needs to remember some features that may complicate its use to students. First, the case does not have the correct answer. There can be one optimal solution (at the same time it can not always be implemented in a real situation), but there are several effective solutions. Secondly, certain information of the case may be contradictory or constantly changing. After all, the case is based on real facts and imitates a real life situation, and in life more than once you have to face such problems.

Thirdly, as a rule, cases are resolved in a limited time (during one pair, the continuation of the discussion for the second pair, as our experience shows, loses the efficiency and interest of students). In real pedagogical activity, there are often situations when it is impossible to find out all the details and have a complete picture in front of your eyes.

Case discussion is one of the mandatory stages of the lesson. In the lesson, it is recommended not only to listen to students' answers to questions, but also to organise a discussion of the situation. For discussion, we recommend using the following format: 1) one of the students gives a brief description of the situation (3–4 sentences); 2) 2–3 students briefly formulate the main problem of the situation. Other students need to comment on the proposed options and choose the best one; 3) ask students to characterize the actions of the teacher, in terms of the problem formulated in the case; 4) ask several students to bring other solutions to this problem. If an option for such a decision is given in the case, express your attitude to it, justifying its pros and cons; 5) ask one of the students to summarise the discussion and give recommendations for implementation in the educational process.

Consequently, cases are an interesting and effective method of teaching and scientific research and are widely used by teachers. The sources for the development of cases can be: various situations in the daily process, publications in pedagogical publications, materials collected during pedagogical research, existing case databases, published case collections, etc. To use cases as a method of learning, it is necessary to

follow the rules for analysing and discussing the case, to prepare models of correct and complete answers to the case for assessing the knowledge and skills of students.

To use cases as a method of scientific research, it is necessary to think over methods of data collection and analysis, including quantitative and qualitative results of the study, which provide a detailed review of all the characteristics of the object under study.

Thus, one of the most important characteristics of the proposed methodology, which affects the efficiency of the process of future agrarians' vocational personality self-development, is the information environment. The information environment of future agrarians' vocational personality self-development is a pedagogical system based on the principles of open, continuous education, developing learning and combines information educational resources, pedagogical technologies, didactic conditions and incentives for professional self-improvement and personal growth. The concept of developing a smart information environment of vocational personality self-development reveals the problems of creating a pedagogical information product that will become an effective tool for self-education, self-presentation and reflexive self-control of a modern agrarian, ready for lifelong education, continuous improvement of professional competencies and self-realisation of the potential within the chosen specialty. The functioning of a given environment of vocational personality self-development occurs in interaction through information resources that reflect the thematic content load. It should be noted that in the process of activities aimed at vocational personality self-development, the separated stages, forms and methods of work are often intertwined with each other or used in a complex way.

CONCLUSIONS

The dynamics of a future agrarian's vocational personality self-development is determined by many factors, among them a significant role is played by the technology based on the latest achievements of the information society.

An electronic portfolio is one of the effective self-development tools providing unique opportunities to acquire new knowledge and skills in e-education, online education and allowing us to explore our own achievements, evaluate our strengths and weaknesses and document the experience gained in a convenient and accessible form. The main functions of the electronic portfolio are diagnostic, informative, motivational, planning, correction.

Creation of a blog plays the role of an interactive platform for highlighting its own developments, opinions, etc. and receiving a certain reaction from subscribers. This exchange of views can also encourage and provide ideas for finding solutions to the problems being discussed.

Stages of vocational personality self-development are associated with the formulation of the goals; awareness of the importance of activity; determining the tools for achieving the goal; analysis of difficulties in achieving the goal and ways to overcome them; creation of self-improvement programmes, designing the strategy of vocational personality self-development, forecasting of future professional activity, development of the strategy for solving professional problems; analysis and self-assessment of vocational activities.

Analytical activities reveals itself as the basis for forming the motivational-value component of vocational personality self-development

For the purpose of its development, it is proposed to conduct a SWOT analysis, during which the future agrarian gets an idea of the advantages or disadvantages of certain acquired knowledge, skills, etc., opportunities and threats associated with their absence.

The methodology of using the psychological game "Six Thinking Hats", which teaches us to change the viewpoints due to different events, be ready to change our mind according to the circumstances, be able to consider the problem in various aspects.

7. Project activity is an important method of forming the cognitive-creative component of vocational personality self-development. Three stages of project activity at foreign language classes have been proposed. The potential of a foreign language for vocational personality self-development has been observed.

CHAPTER 5
EXPERIMENTAL VERIFICATION OF THE SYSTEM OF FORMING FUTURE AGRARIANS' READINESS FOR VOCATIONAL PERSONALITY SELF-DEVELOPMENT

The technology of verifying the efficiency of the model and technology of future agrarians' vocational personality self-development has been described. According to the determined criteria (motivational-value, target-focused, efficiently-technological, evaluation-analytical, self-regulatory-organisational) the theoretical analysis has confirmed that the introduction of the described methodology has increased a number of students-agrarians with a high level of vocational personality self-development The efficiency of the proposed technology of forming future agrarians' readiness for vocational personality self-development has been experimentally verified. A significant positive impact of all indicators of future agrarians' vocational personality self-development on their qualification has been revealed.

5.1 Organisation and Methods of the Pedagogical Experiment

The content of the determinative, search, formative, control stages of implementation of the pedagogical experiment has been described. The organisation and methods of research have been concretised. The method of expert evaluation and expediency of using Mathcad system for statistical data processing have been substantiated.

To carry out the tasks of research, verifying the technology of forming future agrarians' readiness for vocational personality self-development, a pedagogical experiment has been conducted. The organisation and methodology rely on the overall research programme and include the

determinative, search, formative and control stages of implementation.

The first stage is determinative and search: analysis of scientific literature on the problem of future agrarians' vocational personality self-development; comprehension and structuration of the accumulated material; selection of the research object and subject; defining goals and objectives; development of hypothesis and theoretical provisions of the research; design and substantiation of the model of future agrarians' vocational personality self-development; creation of the empirical research programme.

The second stage is formative: experimental work on substantiation of the main provisions of the hypothesis on the basis of the designed model of future agrarians' vocational personality self-development; substantiation of the technology of future agrarians' vocational personality self-development.

The third stage is control: quantitative and qualitative interpretation of the research results; systematisation and structuring of interpretation results, formulation of research conclusions; clarification of certain stages of the technology of future agrarians' vocational personality self-development; presentation of the research findings.

The pedagogical experiment was conducted since 2016 to 2021 on the basis of Vinnytsia National Agrarian University and its separate structural subdivisions "Technological-Industrial Vocational College", "Ladyzhyn Vocational College". At some stages, the theoretical study was carried out in parallel with the experimental one.

On the basis of the analysis of psychological-pedagogical researches of the process of future agrarians' vocational personality self-development, we have concluded that it is characterised by a complex and systemic character. Strategies for the implementation of these researches are built on subjective relations, reveal patterns of improvement of the subject, reaching the peaks in personal development and professional skills.

Promising strategies for the research of future agrarians' vocational personality self-development: determination the peculiarities of the

influence of the educational environment on the processes of development and self-development; research of relationship patterns between the personality and the vocational-agrarian activity; identification of conditions and factors of vocational personality self-development; interaction of educational environment and self-development as a person and professional; solving existing contradictions between the growing requirements of the social environment and existing models of self-development; influence of dynamically growing digitalisation of the society on the process of vocational personality self-development in the educational environment.

In the research of the process of future agrarians' vocational personality self-development, we used almost all theoretical and empirical methods common in psychological and pedagogical researches. To achieve the goal of each stage of the experiment and the implementation of the tasks, we used the following research methods: analysis of normative documents regulating the process of vocational activity of the future agrarian, analysis of its products of activity in the educational environment, expert assessment of the state and process of future agrarians' vocational personality self-development, studying the opinion of students and teachers based on conversations, questionnaires, interviews, grouping, generalisation and systematisation, statistical processing of results in the Mathcad environment.

The purpose of the stated experiment was to determine the existing level of development or self-development. Within the framework of the stated and search experiments, we studied normative documents that guided the future agrarians' activities, analysed the scientific and methodological complex of disciplines: lecture notes, practical classes, laboratory works, term papers, diploma projects. The methods of conversation and interviews, surveys, comparisons, descriptions, measurements, study and generalisation of pedagogical experience are conditioned by the purpose of the experiment. To do this, possible options for conversations were thought out and a range of main and additional

issues that helped to delve into the essence of the problem was chosen.

Taking into consideration the above mentioned and to achieve the appropriate efficiency, we have proposed a new method of research actions, based on the method of certain expert assessments. A group of experts, including authoritative teachers, identified and evaluated all significant aspects of the phenomenon under study. We have systematised these assessments and formulated final conclusions. The problem of expert evaluation of the results of educational activities was investigated by such well-known scientists as Yu. Babanskyi, S. Honcharenko, I. Pidlasyi and others. Considerable use of the expert evaluation method has become practical. Thus, O. Polozenko used expert evaluation to determine the criteria and quality indicators of pedagogical activity of the teacher-agrarian [62].

There are different definitions of the concepts of "expert", "expert evaluation method", "expert method" and "expert evaluation". For example, "expertise is an integral scientific, cognitive or qualification procedure, which provides for a comprehensive constative research of the phenomenon, process, conditions of existence or course of phenomena chosen by the subject of expertise" [36, p. 256], "expert evaluation method is a method of forecasting based on achieving consistency by a group of experts" [13], "group expert evaluation method (GEE), or Delphi method – a method that involves the examination by a group of experts according to a certain algorithm". [31], "expert evaluation is an expert judgment expressed in quantitative and qualitative forms" [2].

In the research, we rely on such an understanding of the expert method – a set of logical and mathematical procedures aimed at obtaining information from specialists, its analysis and generalization in order to prepare and choose rational solutions [58].

The use of expert evaluation allowed us to solve three important problems. First, take into account the essential individual characteristics of the future agrarian's activities in a particular educational environment and adequately reflect them in the general conclusions. Secondly, to take into

account not only quantitative, but also qualitative information about the state of the processes under study, this is usually the most expressive. Thirdly, a person who has been working in the field of research for a long time and is well versed in the intricacies of work accumulates rich experience and valuable knowledge, which often cannot be interpreted in a formalized form. Expert procedures allowed solving this problem.

Using expert assessments to develop criteria, we thereby: avoided subjectivity, which is inevitable in the case when one specialist does it; fully used the experience of experts; got the possibility of unification, and therefore automation of one of the most important stages of professional diagnostics – the construction of a model of the system of future agrarians' vocational personality self-development.

Thus, to achieve the result we have developed our own methodology, based on the method of expert evaluations. The main stages of the expert evaluation process: formation of the purpose and objectives of expert evaluation; selection of the method of obtaining expert information and methods of its processing; selection of an expert group and the formation of questionnaires as needed; expert surveys (expertise); processing and analysis of the results of the examination; interpretation of the obtained results. The criteria for choosing experts are described by N. Fedorova: competent in the research methodology and other techniques of information analysis; understand the social context and essence of the evaluation object; able to maintain relationships and cooperate with other persons and groups of persons involved in the assessment; have a conceptual scheme for the integration of the above described qualities [88]. On their basis we have detailed the following indicators:

1) The level of competence of an expert in a certain subject area, the indicators of which in the aggregate are: the level and profile of education; work profile (connection with this subject area); profile work experience (total profile work experience and work experience directly in this subject area); level of problems solved (compliance of the position with the nature and level of the problem); quantity and quality of previously performed

successful examinations.

2) The degree of objectivity and impartiality of the expert in the analysis and evaluation of phenomena in a particular subject area (the expert's disinterest in making a certain decision). In the process of evaluating experts by these criteria and selecting experts, we used the following procedures: self-assessment of experts by objective parameters; mutual evaluation of experts; evaluation of experts by independent experts.

The number of experts *n* was determined on the basis of the theory of selective observation:

$$n = \frac{P(1-P)}{\Delta_p^2} t^2 \quad (5.1),$$

where *n* is the required number of members of the expert group; *P* – the relative importance of experts who meet the criteria for the selection of experts; *t* – Student's t-distribution at a given level of probability; Δ_p^2 – the average threshold error.

In the general list of experts, made up of 200 specialists, 182 meet the requirements. At a given probability *P* = 0.95, the average error is 0.1, relative importance *P* = 182:200 = 0.91:

$$n = \frac{0,91(1-0,91)}{0,1^2} 2^2 = 33 \text{ (experts)}.$$

At all stages of the experiment, we used methods of mathematical statistics, the choice of which is made due to the specifics of the research. Initial data were expert assessments, self-esteem and rating classification. In addition to determining numerical characteristics, correlation and regression analysis was carried out, which are less common in experimental researches of pedagogical processes, but deserve attention. A significant number of works devoted to the general methods of research and organisation of experiments emphasise the efficiency of correlation analysis. The value of the correlation coefficient *r*, which lies within $-1 \le r \le 1$, can serve as a characteristic of the tightness of the linear relationship [79].

Correlation analysis allows not only to identify the relationship between individual phenomena or to confirm that such a connection is, but

also to give a qualitative assessment of their mutual impact. In some cases, the analysis of the obtained results and their summary to a different look were carried out by Mathcad. For data processing, the named universal integrated system was chosen, which has significant opportunities in working with mathematical statistics tasks. In particular, it contains a large number of built-in special functions that allow you to quickly process the sample of random values [77].

Mathcad statistical analysis allows you to avoid bulky calculations using common formulas to find numerical characteristics of random variables – just enter observational data or survey results. In order to evaluate and compare the sample, the arithmetic mean, mode, median, variance, root-mean-square deviation was found using the built-in functions: *mean(A), mode(A,B,C,...), median(A,B,C...), Var(A,B,C...), Stdev(A), where A, B, C* – data matrices (scores, levels, grades, etc.).

In order to verify statistical hypotheses about the degree of discrepancies between sample values of random values, Student's t-criterion was used with the freedom degree $N-1$, where N is the degree of freedom for measuring the mean of a sample form. This is a parametric criterion that is used when the type of distribution or sampling distribution function is given to us. In the calculation formula it contains the parameters of the distribution [72].

The metric for accepting or rejecting the hypothesis was the quantum distribution of Student's X_r and X_l , that was critical for accepting or rejecting the hypothesis. If the sample value was within $X_l < \varphi < X_r$, then the null hypothesis was accepted. For the significance level of 0.9, this inequality was $1{,}645 < \varphi < 1{,}645$. The relevant Mathcad documents are given in appendices З, К, Л, М, Н.

To determine the of dependence between two data samples presented in the form of data matrixes of random values (A and B), the evaluation of the covariance coefficient of these sets of values was evaluated using the built-in function *cvar(A, B)*. To answer the question: how dependent are the data of the two sample, we determined the correlation coefficient

corr(A,B). Furthermore, having a set of points (experimental data), we intended to build a continuous curve that best fits the experimental dependency. To do this, regression analysis was carried out, that is, the selection of function parameters for the best approximation of experimental data (Appendix P).

5.2 Analysis of the Results of the Determinative and Formative Stages of the Pedagogical Experiment

The determinative experiment was aimed at researching the pedagogical phenomenon and fixing the achieved level of training in the conditions of the factors that were determined before it. The purpose of the stated experiment was to determine the existing level of future agrarians' development or self-development.

The processes of vocational and personality development and self-development of the future agrarian are continuous in nature, which requires systematic constant work on their own improvement. The continuous nature of the future agrarians' vocational personality self-development will determine the need to track the existing changes in the development of professional and personal qualities. The key concepts of this stage of the experiment were: change tracking, system, continuity, measurement, data collection, processing, forecasting and decision-making. They performed such functions:

- ✓ tracking the state of objects or processes, assessing their quality on the basis of accumulation and dissemination of information;
- ✓ identifying existing problems and potential risks of the system state;
- ✓ research of regularities of processes, types of problems;
- ✓ assessment of the efficiency of made decisions and consequences.

We have determined the diagnostics of future agrarians' vocational personality self-development as an individual and a professional on the basis of the following main provisions: this is a continuous process of

systematic monitoring and recording of data in accordance with certain criteria and registration of parameters based on certain criteria; this is an individual dynamics of changing the main indicators of vocational personality self-development. We have distinguished the following main stages of its implementation:

- ✓ diagnostics and analysis of changes in self-development indicators;
- ✓ identification of emerging difficulties;
- ✓ correctional activity.

Improving the quality of development processes and self-development is directly related to the formation of a monitoring research system as one of the main tools for tutoring students-agrarians' self-development. The information obtained in this way allows you to compare the results and predict further processes of development and self-development. Strategic planning and specific monitoring programmes should be based on the identified links and relations of previous pedagogical experience.

The peculiarity of studying future agrarians' vocational personality self-development is connected with the combination of internal self-analysis and external expert evaluation of the results of this process, as well as in the implementation of comparative analysis of the data obtained. Therefore, the definition of key indicators of a future agrarian's self-development in the educational environment was carried out in two main directions:

- ✓ external independent expert evaluation, which was carried out according to certain strictly specified criteria;
- ✓ self-esteem of a future agrarian on the basis of using his / her own criteria.

As samples of our own criteria for the efficiency of a future agrarian's vocational personality self-development we have proposed the following positions:

- ✓ a sense of inner satisfaction with the final results of our work;
- ✓ a positive assessment of the results of self-development by the participants of the educational process;

✓ a level of recognition by the student team;

✓ opportunities for further development as a person and a professional.

External examination of the efficiency of self-development was carried out according to more formalised criteria for a future agrarian's success. Such expertise was carried out during the certification, presentations of creative works by future agrarians and the formation of rating systems for assessing the quality of training. The external assessment system included: quality of educational activity, scientific activity, organisational work, self-education, level of recognition in the team among students.

The following techniques were used as diagnostic tools for assessing the process of future agrarians' vocational personality self-development: questionnaires in order to determine the dominant motives of self-development, assessment of a future agrarian's design and analytical competencies, study and the analysis of educational products, testing and analysis of emotional-volitional regulation of a future agrarian's self-development.

Thus, the management of the quality of development processes and self-development of a future agrarian as a person and a professional on the basis of the received monitoring information allowed:

✓ to quantify changes in the subjects' self-development, determine and predict the main directions of their own development;

✓ to carry out strategic and tactical planning by optimising the design of individual professional and developing trajectories of a future agrarian;

✓ to use the obtained information systematically during the monitoring for determining the main developing trends;

✓ to motivate future agrarians to vocational personality self-development, significantly improve its quality on the basis of quantitative and qualitative external and internal assessments;

✓ to conduct scientific-methodical and tutor support of the process of future agrarians' vocational and personality self-development at the

highest level;

- ✓ to form statistical databases;
- ✓ to improve the quality of the functioning of micro-environments, their professional and developmental potential;
- ✓ to predict the main trends in the development of integrative educational macro-environments in order to optimise the processes of future agrarians' development and self-development.

First of all, we have identified the most important arguments when choosing a profession among agrarian students (Appendix T). Professional skills and curiosity are the most common motives (46.3%, 45.7%), which determines the first places in the system of justification of the choice of profession. The influence of other people's opinions, financial factors and geographical location is the following argument in the hierarchy (39.8%, 24.5%, 23.9%). The possibility of career growth takes the next position (22.2%). Pragmatic factors are less common: a small competition at an education institution, relatively lower tuition fees than at other higher education institutions, the prestige of the profession, the continuation of family tradition, in this area there are acquaintances who will help to get a good job, the opportunity not to part with friends.

One of the tasks of the conducted experiment was to establish the existing experience of vocational personality self-development, especially, the main norms of non-formal and informal education, as its components (Fig. 5.1).

Popular examples of non-formal education were: vocational courses, trainings, seminars for obtaining new skills, Leadership School of VNAU, interest groups (23%). Foreign language courses, driving courses, computer courses were in demand among future agrarians. This is due to the requirements of employers: knowledge of English at the B2 level, driving license, pc knowledge.

Online education with large-scale interactive participation and open access via the Internet recent has enjoyed the great popularity (25%). First of all, it is caused by the coronavirus pandemic. This is one of the newest

forms of distance learning, which is actively developing in world education.

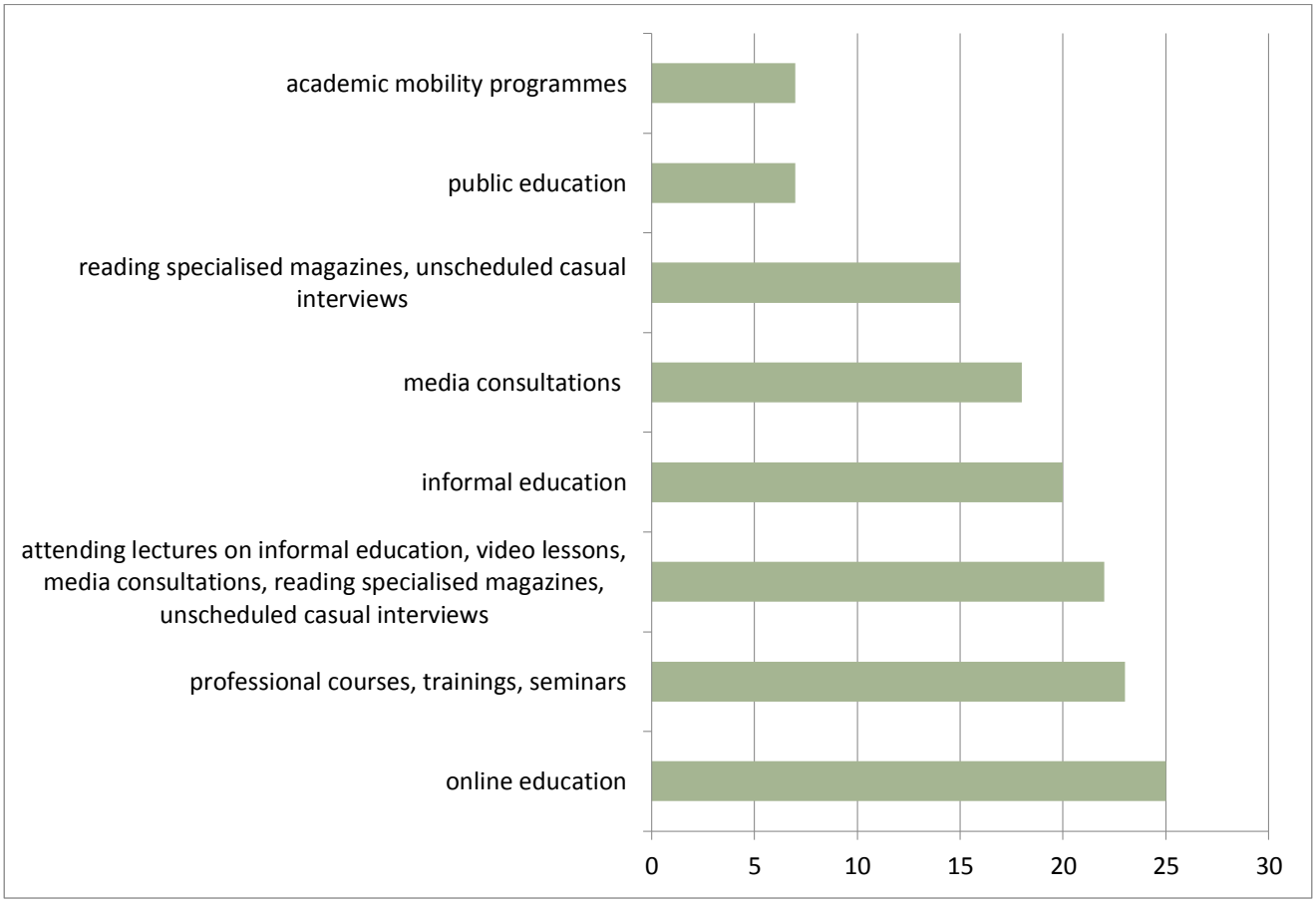

Fig. 5.1 Main Forms of Non-Formal and Informal Education of Future Agrarians

Source: Compiled by the authors on the basis of the survey.

The respondents also noted attendance of lectures on informative education, video lessons, media consultations, reading specialised journals, unplanned random interviews (20%).

There were some cases of students' participation in academic mobility programmes (7% of students participated in the educational process at other higher education institutions in Ukraine or abroad, passed educational or industrial practice, conducted scientific research with the possibility of the credit transfer of educational outcomes received in disciplines, practices, etc.).

Less common is public education, which prepares the population of the country, especially young people, to fulfil their role as citizens (7%). It

includes informal social institutions: families, communities, libraries, churches, public organisations, trade unions, sports teams, election campaigns.

Vocational internships turned out unpopular. This was explained by the employment of students during the educational process. Due to the specifics of the agricultural sector, traditions in Ukrainian families to maintain farms, the organisation of farms, informative education (20%). It includes educational activities in the family, at the place of residence and in everyday life. As a rule, its orientation is determined independently, by family or society. This is the result of daily work, family and leisure activities.

The motives were identified using a single method for all ages. Listeners were asked to answer a number of clarifying questions. Analysis of the results of this stage of the experiment showed that, as a rule, the educational institution provides an opportunity for future agrarians to realise their right to non-formal and informal education

In some cases, agrarian students realise their right to additional education on a paid basis. This circumstance is quite significant, since it will help to determine the priorities in the future agrarians' motivational-value sphere more objectively and improve their personality development and professional qualifications.

In order to identify the ability of the future agrarian to develop, we used the methodology "Assessment of the implementation of future agrarians' needs for self-development" given in Appendix B. The respondents assessed the degree of some development indicators. The obtained data are presented in the diagram (Fig. 5.2).

Only 26.23% of future agrarians showed an active implementation of the development needs. In particular, only 15.3% of the respondents answered positively the question "I manage my vocational development and receive positive results", "Yes" and "More likely than not". In 18.9% development stopped. Such respondents answered most of the questions negatively. And the largest share is made up of students who do not have

a development system – 55.58%. This once again confirms the relevance of creation and implementation of the technology of future agrarians' vocational personality self-development.

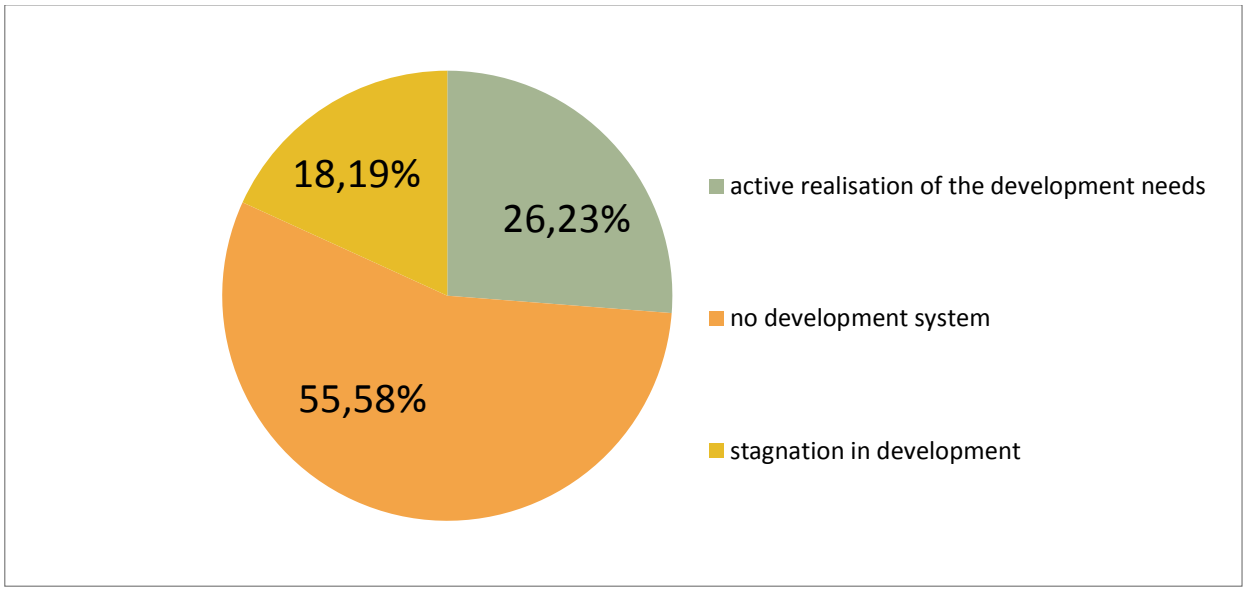

Fig. 5.2 Assessment of the Realisation of Future Agrarians' Self-Development Needs

Source: Compiled by the authors on the basis of the survey.

To determine motivational-value orientations prevailing among students-agrarians at the determinative stage of the experiment, a special comprehensive test methodology was used, which made possible to clarify certain characteristics of agrarians regarding indicators of vocational personality self-development, to catch an idea of the nature of outlining the target, to make appropriate decisions on the adjustment of the proposed technology of future agrarians' vocational personality self-development.

Motivational and value orientations to vocational activity are provided by a certain combination of personality qualities (positive attitude to the chosen profession, interest in it, tendency to engage in it), experience in the process of activity of favourable mental states (love for the earth, feeling of confidence, joy of creativity). Therefore, under motivational-value characteristics, we understood the meaningful side of vocational personality values in the minds and behaviour of students-agrarians, assessment, and above all self-esteem, activities taking into account modern requirements for them (Table 5.1, Fig. 5.3).

Table 5.1

Value-Reflexive Priorities in Assessing the Indicators of Future Agrarians' Vocational Personality Self-Development (Students-Agrarians' Self-Esteem)

	Indicators	Significance levels (%)			
		Low	Critical	Medium	High
1	Sound theoretical knowledge	-	14	60	26
2	High quality methodical training	8	30	42	20
3	Creative approach to teaching	11	46	33	10
4	Ability to improve self-development skills	7	53	13	27
5	Ability to organise group cognitive activities	46	24	22	8
6	Reflexive competence	36	45	15	4
7	Research style of activity	34	36	27	3
8	High adaptability and stress resistance	32	37	30	1
9	Effective goal setting	35	21	30	14
10	Focus on success	11	18	43	28
11	Initiative and innovative activity	39	28	22	11
12	Student-centred approach to teaching	8	17	32	43
13	Desire to master best practices	3	8	56	33

Source: Compiled by the authors on the basis of the survey.

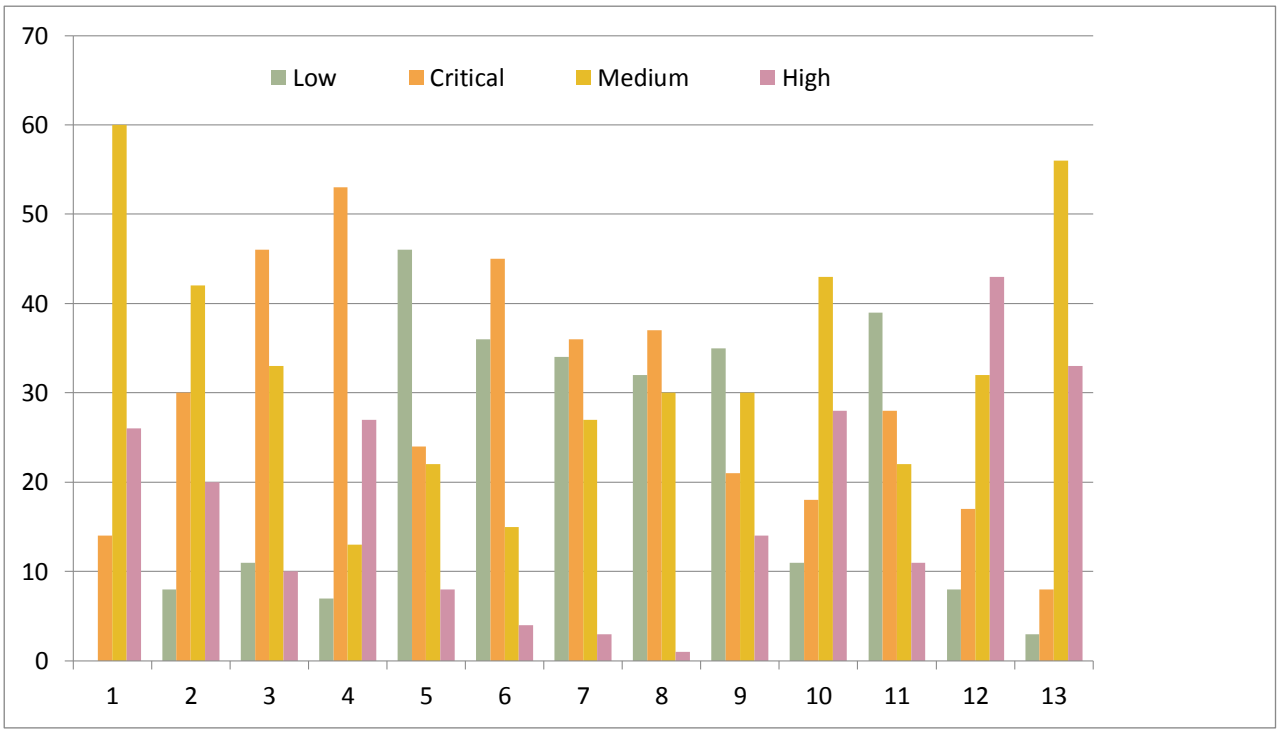

Fig. 5.3 Diagram of Value-Reflexive Priorities in Assessing the Indicators of Future Agrarians' Vocational Personality Self-Development (Students-Agrarians' Self-Esteem)

Source: Compiled by the authors on the basis of the survey.

In order to clarify the degree of conformity of the data obtained in the process of research of motivational and value priorities in relation to the level of professional qualification and the real state of affairs in this area, an expert group was formed. The purpose of the group was to assess the level of motivational-value orientations of future agrarians. Members of the expert group were asked to assess the level of future agrarians' vocational personality self-development, according to the indicators in Table 5.1.

Table 5.2

Priority Indicators in Ensuring Future Agrarians' Vocational Personality Self-Development (Expert Evaluation)

	Indicators	Significance levels (%)		
		Meaningful	Perspective	Priority
1	Sound theoretical knowledge	8	38	54
2	High quality methodical training	14	39	47
3	Creative approach to teaching	26	56	18
4	Ability to improve self-development skills	35	48	27
5	Ability to organise group cognitive activities	52	21	27
6	Reflexive competence	79	12	9
7	Research style of activity	49	23	28
8	High adaptability and stress resistance	55	34	11
9	Effective goal setting	49	41	10
10	Focus on success	19	43	38
11	Initiative and innovative activity	12	28	60
12	Student-centred approach to teaching	17	48	35
13	Desire to master best practices	14	48	38

Source: Compiled by the authors on the basis of the survey.

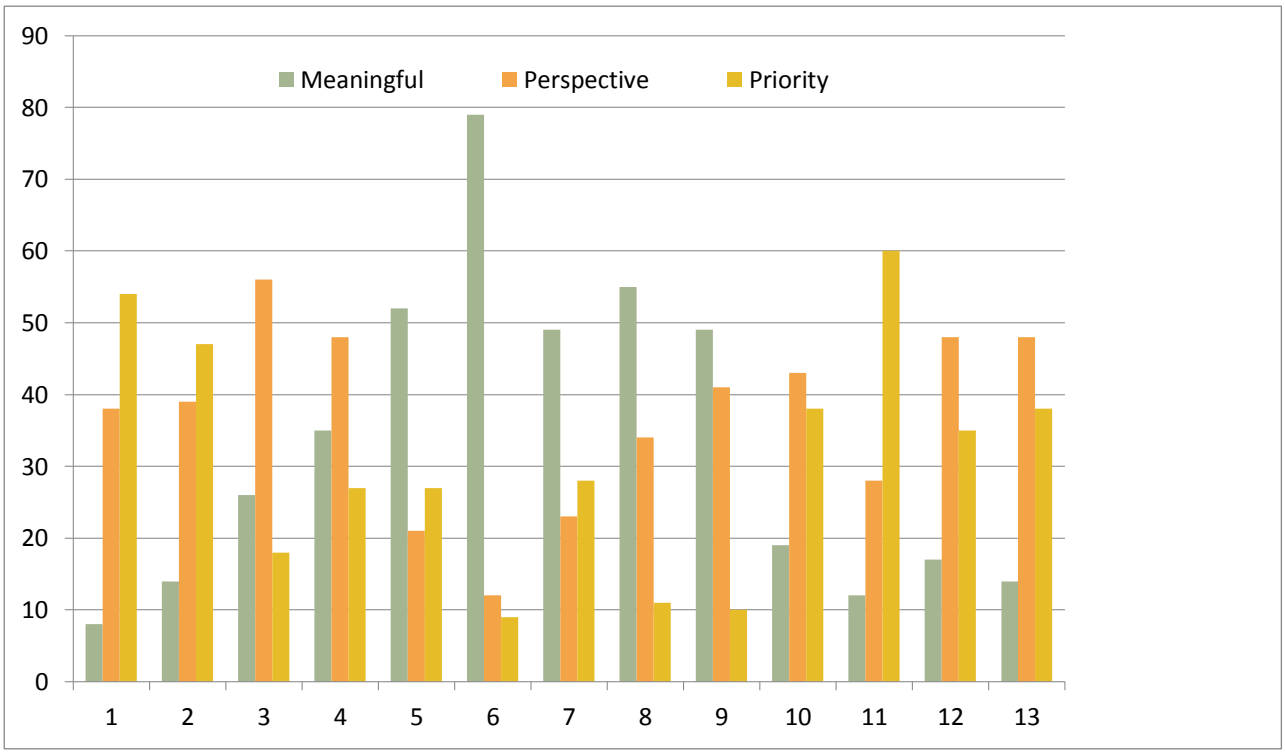

Fig. 5.4 Diagram of Priorities in Ensuring Future Agrarians' Vocational Personality Self-Development (Expert Evaluation)

Source: Compiled by the authors on the basis of the survey.

The comparison of the obtained data showed a high level of consolidation of agrarian students and experts on the significance of the corresponding indicators of future agrarians' vocational personality self-development. For example, the obvious priority in the advantages of the experiment participants on theoretical and methodical training of future agrarians, since they are system-trusting in agricultural activities. Setting the task of exploring the relationship between traditional signs of professional qualification of future agrarians and innovative approaches to the definition, we were to some extent impressed by its obvious expressiveness in terms of differences.

For example, only 4% of the surveyed agrarian students attributed reflexive competence to a high level of significance, while 79% of the members of the expert group recognized this feature of the future agrarian as significant, 12% and 9% identified it as (respectively) promising and priority.

To a sufficient extent, both students and members of the expert group stand in solidarity with the assessment of the value of such qualities of a future agrarian as the ability to goal setting, the ability to self-development, the ability to organise collective cognitive activity, the research style of activity. The attitude towards them can be attributed to the auxiliary ones. As promising, the desire for a creative approach to teaching has been defined.

The conducted work served as a basis for identifying promising directions for the development of additional self-education. Analysing the generalised description of the viewpoints of future agrarians, members of the expert group on promising directions for the development of additional opportunities for future agrarians' vocational personality self-development, it was possible to come to the following conclusions (Fig. 5.5).

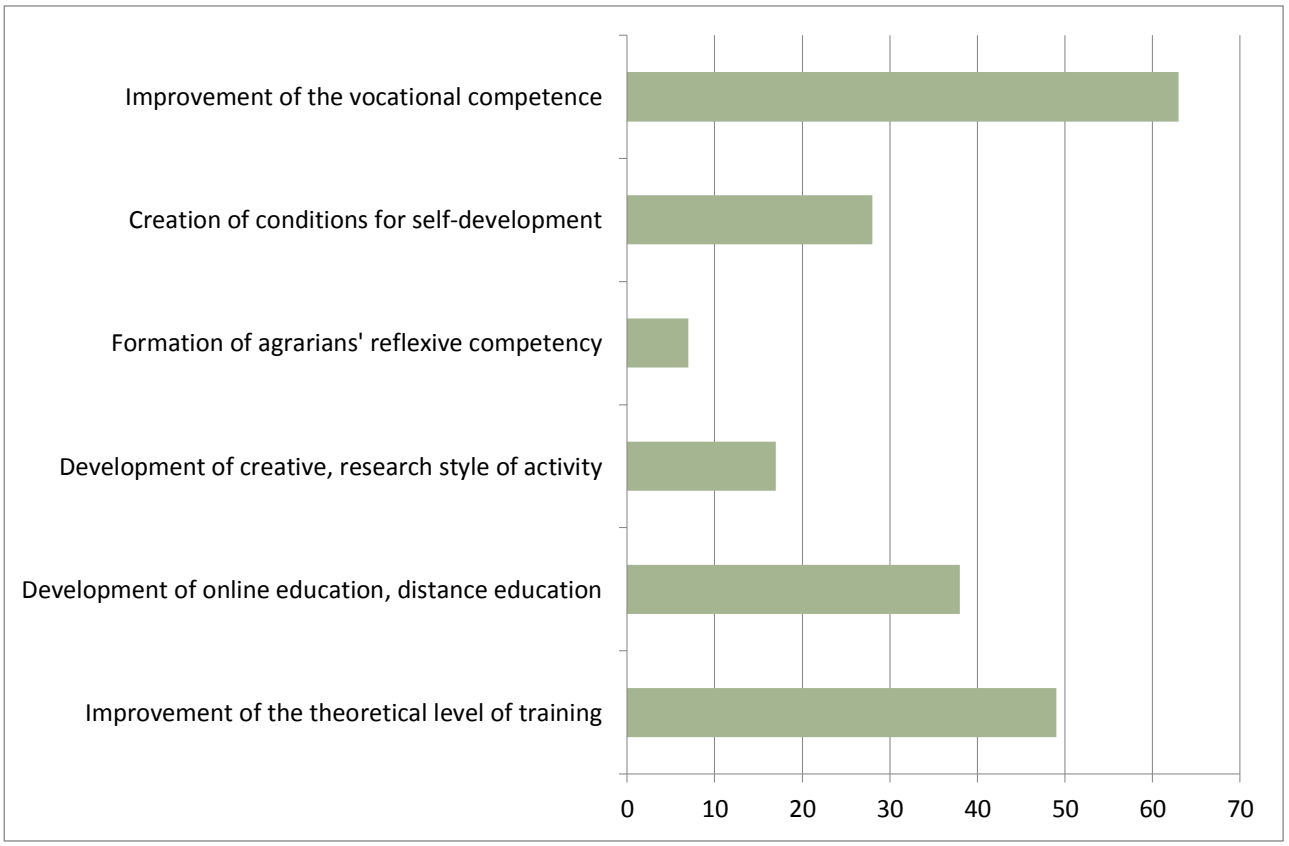

Fig. 5.5 Priority Directions of the Technology of Forming Future Agrarians' Vocational Personality Self-Development

Source: Compiled by the authors on the basis of the survey.

Firstly, nowadays in the educational sphere an understanding of the main directions of its modernisation has not been properly developed. This causes a certain distrust of agrarians to measures to modernise vocational education.

Secondly, in the educational standards of the new generation, the main focus is on the meaningful part, the structure of educational programs and the normative support of the educational process. The developing potential of educational standards, which ensures the development of vocational education in the context of rapidly changing requests of individuals, families, stakeholders, expectations of society and state requirements in the field of education, is largely represented at the level of temporary declarations.

Thirdly, the efficiency of informal education of agrarian students as experts and the future agrarian, we associate, first of all, with the students gaining new knowledge, methodological techniques for organizing cognitive activity.

Fourth, the formation of reflexive competence as a concept in the pedagogical environment of vocational education is not actively used due to the insignificant importance that is given to it.

Fifthly, trends in the growing agrarians' interest in vocational personality self-development, informal education, to the formation of a creative, research style of vocational activity allow us to assume the possibility of creating new, more progressive systems of future agrarians' vocational personality self-development.

The final stage of the determinative experiment was the clarification of the target-focused experimental work, defined previously as a theoretical justification for the phenomenon of future agrarians' vocational personality self-development and modelling future agrarians' vocational personality self-development. At the end additional work was carried out to research the existing view points on the modernisation of approaches to future agrarians' vocational personality self-development, new essential moments forming its basis.

Correction of the research hypothesis, goals and objectives of experimental work was carried out in the process of participation of authors in international, regional and industry conferences, seminars, webinars, trainings, communication with stakeholders. The results of discussion of the problem of future agrarians' vocational personality self-development with leading specialists – participants of the events allowed summarising conclusions on priority directions of increasing its efficiency (Fig. 5.6). The participants of the experiment were asked to rank the significance of the proposed areas of future agrarians' vocational personality self-development, while choosing three, in their opinion, the most important.

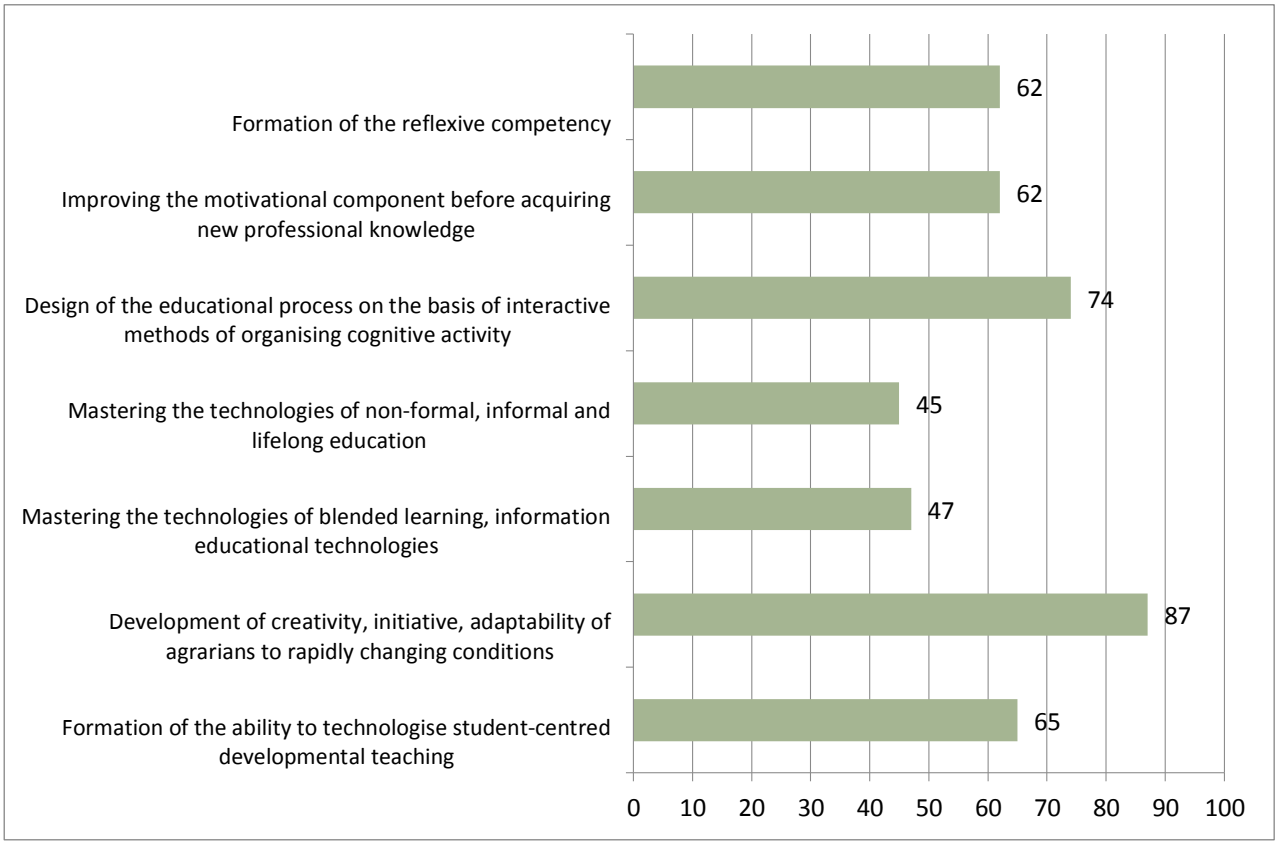

Fig. 5.6 Priority Directions for Improving the Efficiency of Forming Future Agrarians' Vocational Personality Self-Development

Source: Compiled by the authors on the basis of interviews with leading specialists.

The results were sufficiently different from those obtained earlier in the survey of future agrarians and experts. For example, new terms have appeared – mixed education, gamification in education, informal, non-formal education and lifelong learning. Priority components were identified by 47% and 45% of the respondents; almost each of the participants of the experiment as an indispensable component of modernisation of future agrarians' vocational personality self-development determined the formation of students-agrarians' abilities for creativity, adaptability in rapidly changing conditions of the professional environment (87%); the priority of interactive teaching methods was confirmed by 74% of the respondents; the basis of the efficiency of professional self-improvement, 62% of the respondents determined the formation of the reflexive competence. The same number noted the improvement of the motivational component for the acquisition of new professional knowledge.

The obtained results strengthened the opinion that the efficiency of modelling future agrarians' vocational personality self-development depends entirely on the modernisation of approaches to forming future agrarians' vocational personality self-development, and for this there is a sufficient level of understanding of the main directions of activity in this area.

The stated experiment as a whole allowed formulating the following conclusions:

1) The existing system of forming future agrarians' vocational personality self-development is not fully responsible for ensuring the quality of solving the problems of modernisation of vocational education.

2) The basic needs and motives of future agrarians are largely determined by personal factors that are not properly related to real professional improvement.

3) Trends in changing approaches to modelling future agrarians' vocational personality self-development, growth of self-awareness of students, expansion of the regulatory framework of additional education

suggest the possibility of significant increase in the efficiency of forming future agrarians' vocational personality self-development for the introduction of the developed method of forming future agrarians' vocational personality self-development, the peculiarity of which is the orientation to use information technologies, creation of an individual trajectory of formation of readiness for forming future agrarians' vocational personality self-development; use of analytical activity to form future agrarians' vocational personality self-development.

At the same time, the following pedagogical conditions should be fulfilled: stimulating motivation for forming future agrarians' vocational personality self-development; ensuring the focus of the educational process on forming future agrarians' readiness for vocational personality self-development; use of information technology resource to form the future agrarians' readiness for vocational personality self-development.

At the search stage of the pedagogical experiment, we realised that certain indicators and level of achievements of future agrarians, as well as their attitude to the educational process, groupmates are students are a direct or indirect reflection of the acquired life and professional experience. In this view it was considered expedient and possible to get a clearer idea of the peculiarities of the process of forming future agrarians' vocational personality self-development, taking into account their professional and personal experience (especially, to fix the level of their interests in professional activity and self-development, the degree of understanding of the essence and significance of this process both in theoretical and practical dimensions).

At the same time, we realised that future agrarians' vocational personality self-development is a complex psychological-pedagogical process characterised by their active activities, desires and efforts to work on themselves, as a result of which professionally significant qualities are improved. Therefore, the study of this process requires a thoughtful research approach, the development of appropriate experimental procedures by which it is possible to solve the tasks.

In the organisation of experimental work to check the efficiency of pedagogical conditions of forming future agrarians' vocational personality self-development, pedagogical reflection was used as an effective way of this process. We consider the involvement of students in reflection not only as the formation of the need and stimulation of the desire for self-knowledge, self-understanding, deep awareness of their inner world, attitude to work, installations and beliefs about other people, what happens in the process of communication, but also to find out how their personal and cognitive characteristics, emotional reactions are perceived and evaluated by others (teachers, classmates, students, etc.). The highest level of pedagogical reflection is manifested in reflections on yourself in the profession and profession in you.

Within the framework of experimental work, the following methods of reflexive analysis were used:

✓ individual reflection (independent analysis of the events of the day, their actions, actions and reactions of classmates);

✓ appeal to the help of a mentor (teacher, tutor, mentor, as a more experienced colleague);

✓ reflection in a group of colleagues equal in level of qualification, that is, among students of one academic group or course.

In the course of reflection, there is a double mutual reflection of people ("I am in my eyes", "I am in the eyes of another person"), resulting in a person's understanding of what it really is. Here is a sample list of questions that were used to reflex future agrarians:

"How do I assess the level of my readiness for professional self-development?"

"How do I imagine my professional career in the agricultural sector?"

"In what way should my relationships with colleagues be built?"

"What are my positive and negative qualities that will contribute or hinder success in my vocational activities accordingly?"

"How do I assess my achievements in vocational training?"

Students carried out self-analysis, regardless of the experience of educational and practical activities, aware of it as a common phenomenon. In the presence of acquired skills of self-analysis and self-determination, they did not spend much time, but the benefits were undoubted. For example, the analysis of situations carried out after classes or practice helped future specialists not only to evaluate their behaviour in their conduct, positive or negative aspects, but also to draw appropriate conclusions for themselves regarding further prospects for self-development. In reflexive activities, students adhered to the following rules: concentration – not to be distracted by current issues and not to take into account the associations that arise; self-submersible – no one and nothing should interfere with the comprehension of difficult pedagogical situations; focus on your actions and emotions.

At all stages of experimental work on the analysis of the efficiency of the developed and implemented model of forming future agrarians' vocational personality self-development, the hypothesis was confirmed that in the conditions of a rapidly changing innovative educational environment of vocational education, without adapting forming future agrarians' vocational personality self-development to innovative changes in vocational education, the introduction of a problematic-action approach to the process of forming future agrarians' vocational personality self-development and implementation of innovative pedagogical technologies, improvement of the process of professional and personal self-development of future specialists of agrarian profile becomes an unsolved task.

Analysis of the conditions in which experimental work was to be carried out showed that there are no conditions that sufficiently meet the necessary conditions. To organise experimental work, it was necessary to form a team of teachers, united by the main innovative pedagogical ideas. At this stage, the idea was fully confirmed that the organization of the process contributing to the reflexive vocational personality self-development of the object of the pedagogical process should be preceded by innovative self-development of the subject.

A set of measures planned and carried out at the initial stages of the forming experiment showed that in general, even without a particularly sculptor-mentoring selection, the formation of even a temporary pedagogical staff capable of solving the problems of forming conditions for self-education of future agrarians in various aspects of their vocational activities is quite possible.

In the process of training seminars held with teachers in order to imitate the fundamental approaches to the organisation of the educational process, with sufficient obviousness there was an increase in the professional interest of teachers in the technologies of forming future agrarians' vocational personality self-development. The data obtained during the initial survey of the expert group of teachers on priority areas implemented in the system of future agrarians' vocational personality self-development le were compared; data obtained during the survey of the leading teachers involved in the conduct of classes in the conditions of experimental work; data obtained after the completion of preparatory activities (Fig. 5.7).

The priority areas for improving the efficiency of forming future agrarians' vocational personality self-development were: the formation of reflexive competence; improvement of methodological skills; construction of educational process on the basis of interactive methods of organization of cognitive activity; mastering technologies of informal education and non-formal education; mastering technologies of online education, information educational technologies; development of creativity, initiative, greater adaptability to rapidly changing conditions; formation of the ability to technologise student-centred developmental teaching.

As can be seen from the diagram, the logic of changes is quite logical and generally confirms the previously stated assumptions. The dynamics of changes in all indicators among teachers who will carry out experimental training of specialists has increased significantly in all respects and has come close to opinions of leading specialists. There was approximately a 20% increase of indicators which ensure the formation of

the ability to technologise student-centred developing methods, creativity, initiatives, adaptability and design of the educational process on an interactive basis of the reflexive competence. Other indicators also increased by about 10%.

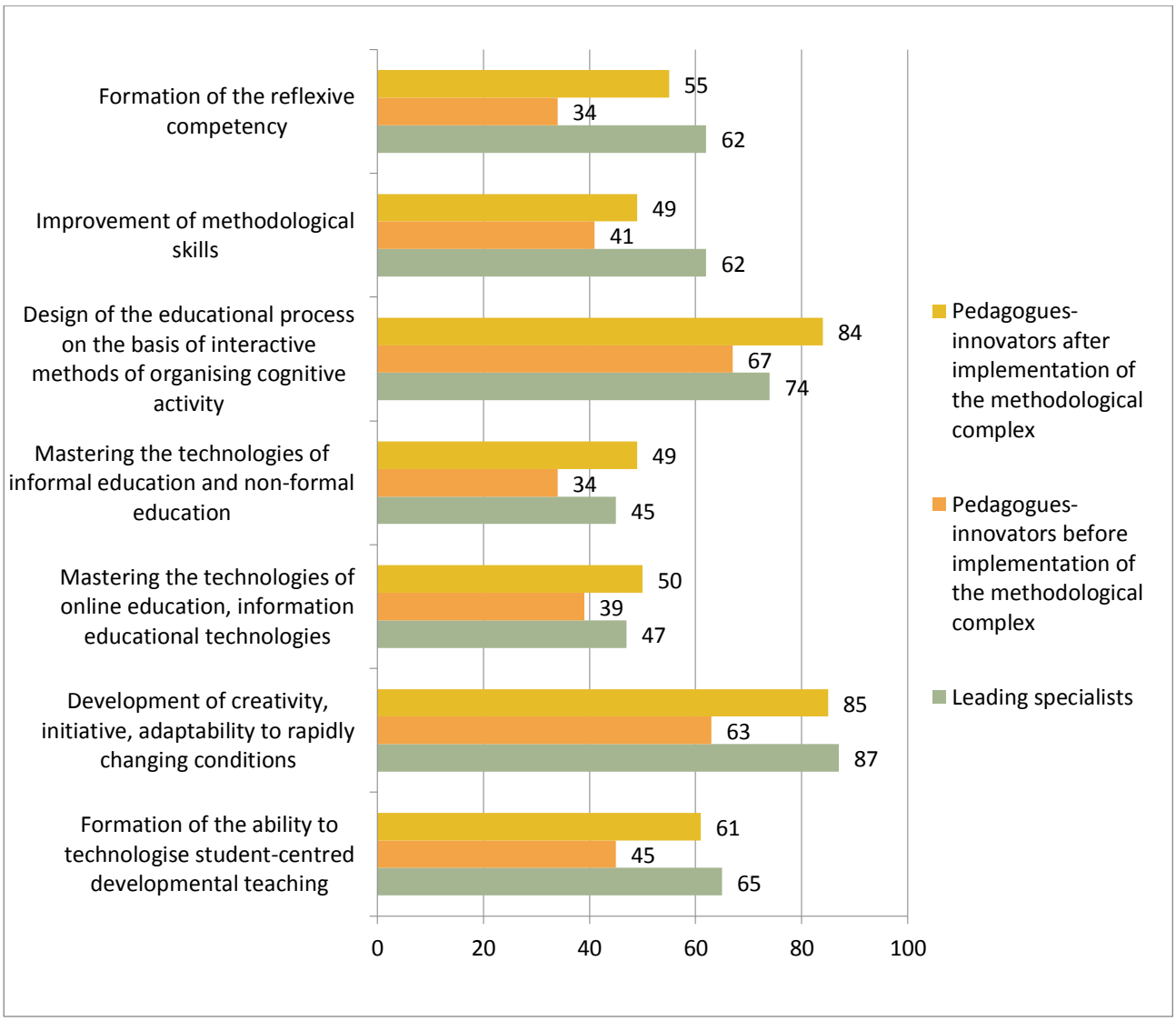

Fig. 5.7 Priority Directions for Improving the Efficiency of Forming Future Agrarians' Vocational Personality Self-Development (according to the survey of leading specialists and innovators involved in teaching in the conditions of the experimental work)

Source: Compiled by the authors on the basis of the survey.

Thus, on the basis of an empirical study, the following conclusions can be formulated:

1. A high degree of desire for self-development is typical for most agrarians.

2. Most students are characterised by a high level of active self-development, as well as (to a lesser extent) a formed system of self-development, dependent on external conditions.

The obtained data indicate that the selection of teachers to participate in the experiment was carried out successfully; the preliminary methodological training of the formed team gave a positive result.

It should be noted another specific feature of experimental work. In the process of implementing the model of forming future agrarians' vocational personality self-development, teachers made adjustments both to the content and to the methodology of organisation of work. The main motives for making decisions on the revision of the technology were: adaptation of the content and methodology of the classes in connection with the peculiarities of the training group, the level of training and the interests of students; adaptation of technology in order to create conditions for the most productive implementation of the teachers' own pedagogical experience; adaptation of the program in order to optimise the conditions that contribute to the development of the reflexive competency of listeners.

This circumstance confirmed another assumption that the efficiency of work on the formation and development of the students' reflexive competency corresponds to the level of development of the teacher's reflexive competence at the stage of designing and implementing the purpose of the training course. In general, the work on the study of ways and conditions for improving the model of forming future agrarians' vocational personality self-development was implemented in accordance with the methodology of organising the experiment presented above. In order to diagnose the model, criteria, levels and indicators of the process of forming future agrarians' vocational personality self-development were advanced and substantiated.

Future agrarians' vocational personality self-development is a purposeful, continuous and systematic process of professional and

personal improvement. This process is aimed at increasing the level of professionalism, skill, development of leading personal and professionally significant qualities. Criteria that determine the efficiency of the implementation of future agrarians' personal and professional self-development, based on the following important basic provisions of this process: comprehension and adjustment of the existing difficulties in vocational and agricultural activities; the ability to carry out these activities as a design of planned activities, to model and predict situations of self-development; self-organisation based on self-regulation of activities; change of meanings of own professional and pedagogical activity, motivational sphere; aspiration to actualize potential abilities; ability to determine professional tasks and solve them; dynamics of development of cognitive and scientific-methodical competencies; level of forming of valuation and reflexive skills determining professional activity.

At the first stage, we identified equal and appropriate indicators of a future agrarian's readiness for self-development of as a person and a professional:

A high level exceeds the standards: the presence of meaning and internal motives of self-development; ability to evaluate the external macro-environment timely and adequately, its saturation with professional and developing resources, the ability to choose and use professionally developing resources rationally; ability to systematically reflexive activity and broadcast your own development experience.

A medium level: attitude to the process of self-development as a conscious value; the need to provide scientific and methodological assistance in assessing the educational environment, choosing and using professional and developing resources; ability to analyse your own development.

A low level: future agrarians' formal motivation to the process of vocational personality self-development; insufficient level of forming of the ability to choose and evaluate potential professional and developing resources, rationally use them, to design an individual professionally

developing trajectory; a low level of skills to carry out self-development reflection in the process of vocational activity.

Then we defined the levels of future agrarians' vocational personality self-development:

✓ ***the first level*** is characterised by active self-development, while professional activity acquires a conscious meaning and personal meaningful value, the future agrarian has a high need to implement own development process;

✓ ***the second level*** – also has a conscious value for future agrarians' vocational personality self-development, and the system of self-development is at the formative stage (a design, practice-transforming activity, self-analysis and reflection of the process of his / her own development);

✓ ***the third lev***el – the stage of stagnation in professional and agrarian activities with a positive attitude to it, formal performance of official duties by a specialist, low level or lack of need for self-development.

On the basis of the activity-based approach, we have developed criteria for future agrarians' vocational personality self-development: motivational-value, target-focused, efficiently-technological, evaluation-analytical and self-regulatory-organisational.

They were distinguished due to the cyclical nature of the activity, its main components (meanings, needs and motives; goal setting as a design and determination of priority tasks; practicing and transforming activities, conducting self-analysis and reflection of activities according to its main results). This allowed carrying out monitoring research and evaluating the dynamics of qualitative and quantitative changes in the process of future agrarians' vocational personality self-development. Each described criterion corresponds to high, medium and low levels, which in a generalised form are determined as follows:

✓ ***high level*** – brightly expressed meanings and motives of vocational personality self-development, high degree of self-organisation,

projecting and reflexive competencies, positive dynamics of the main indicators of self-development efficiency;

✓ ***medium level*** – the formation of competencies of vocational personality self-development at the medium level, tutor support and the provision of scientific and methodological assistance in the implementation of an individual professional and development trajectory are required;

✓ ***low level*** – meanings, needs and motives of a future agrarian's vocational personality self-development as a person and a professional are not sufficiently expressed, a low degree of competences that determine the success of the design, implementation, analysis and reflection of the process of vocational personality self-development.

The content, main characteristics, indicators and diagnostics of the criteria for the process of future agrarians' vocational personality self-development are given below.

1. Motivational-value criterion − includes the level of formation of motives of future agrarians' vocational personality self-development, personal-significant meanings and character of the existing motives, positive attitude to professional activity in specific socio-economic conditions, awareness of the value and prestige of their profession, awareness of themselves as a competitive specialist, the basis of professional competence of which is professionally important personal qualities, creative activity of the agrarian, the degree of comprehension of difficulties in professional activity, the level of need for personal and professional change, awareness of the value of self-development as the highest sense of the agrarian, the ability to systematic and continuous self-improvement, the focus on independence in achieving life's success and responsibility for their own achievements or defeats in future professional activities.

Indicators of the levels:

High: High degree of needs and motives of future agrarians' vocational personality self-development, activity and personal interest of

the future agrarian in the process of self-development.

Medium: The average degree of needs and motives of future agrarians' vocational personality self-development as a person and professional, you need scientific-methodical and tutor support for future agrarians' vocational personality self-development.

Low: Meanings, needs and motives of self-development are weakly expressed, a low degree of interest of the future agrarian in development.

Diagnostics: Questionnaires in order to determine the prevailing meanings, needs and motives of future agrarians' vocational personality self-development [49]; conducting a SWOT analysis, during which a specialist forms an idea of the advantages or disadvantages in the certain acquired features, qualities, skills, opportunities and threats associated with their absence; analysis of the element of the electronic portfolio of future agrarians' vocational personality self-development, which presents the motives of future agrarians' vocational personality self-development; questionnaire "My Idea of a Successful Person" (Appendix E).

2. Target-focused criterion is the ability to carry out the assignment as a design, formulate priority tasks of self-development, give forecasts in achieving real results, project a variative individual professional development trajectory, determine technologies, methods, techniques and means of self-development, the development of a knowledge system on the content of professional activities and decision-making methods in the conditions of risk in the agricultural sector, knowledge about the peculiarities of professional activity, and therefore about the peculiarities of professional activity, and therefore about the professional and personal qualities of a specialist in a market relationship.

Indicators of the levels:

High: High degree of development of projecting competencies that determine the ability to effectively lay, plan actions and predict the results of self-development.

Medium: The medium degree of developmental competencies of the future agrarian, tutor support is required at the stage of designing a

professionally developing trajectory.

Low: The student cannot design the process of his own development, as well as make a choice of technology for the implementation of the tasks.

Diagnostics: Methodology of self-observation and self-analysis, methodology for assessing the design and constructive competencies of the future agrarian on the basis of the results of designing an individual professional-development trajectory of students of control and experimental groups, which they presented as an element of the electronic portfolio of future agrarians' vocational personality self-development [50], questionnaire "Diagnostics of Peculiarities of Self-Organisation (A. Ishkov)" (Appendix C).

3. Efficiently-technological criterion – evaluates the ability to implement in a specific practical activity a projected individual professional and development trajectory in order to achieve the result of its own development, possession of methods and techniques of interaction and synthesis of competencies necessary for the formation of professional and personal qualities of future specialists, the formation of professional experience based on research level skills, the use of a system of ways to create qualitatively new ones objects, ability and readiness to gain new knowledge, critical perception of information, its analysis and synthesis, study, systematisation and generalisation of scientific and technical information, the use of information technologies and databases in professional activities.

Indicators of the levels:

High: High productivity of the process of future agrarians' vocational personality self-development based on the analysis of self-development products.

Medium: Medium performance based on the analysis of self-development products.

Low: Low efficiency of the process of own development, the presence of difficulties in the independent implementation of the individual trajectory of professional and personal self-development. Diagnostics:

analysis of the element of the electronic portfolio of future agrarians' vocational personality self-development, which presents a projected individual professional-development trajectory in order to achieve the result of its own development; evaluation of self-development products that correspond to the results of professional activities (projects, publications, certificates, diplomas, developments, etc.).

4. Evaluation-analytical criterion − determines the levels of forming of analytical and reflexive competencies necessary for objective assessment of the results of future agrarians' vocational personality self-development; the desire to evaluate the results of educational and professional activities and self-development in dynamic conditions of the educational environment, awareness and evaluation of themselves and their abilities, concessions, motives, goals; the ability to constructively build relationships with others; awareness of the requirements of society and their analysis in terms of the goals of future agrarians' vocational personality self-development; the ability to comprehend the results of self-development in the chosen professional field of activity and determine, if necessary, alternative options for its change.

Indicators are latitude and depth of knowledge; transformation of existing knowledge, skills and technologies of analytical activity; stability of psychological interaction, combination of value representations about competence and analysis of the theoretical level of knowledge.

Indicators of the levels:

High: High degree of forming of analytical competencies, adequate assessment of self-development results.

Medium: The medium degree of forming of analytical competencies that allows you to reflex according to the results of personal and professional self-development.

Low: Low degree of form of analytical competencies, inability to carry out an objective assessment of the results of educational and professional activities, difficulties in assessing the results of future agrarians' vocational personality self-development.

Diagnostics: analysis of the element of the electronic portfolio of future agrarians' vocational personality self-development, which presents an assessment of the results of future agrarians' vocational personality self-development; methodology for assessing analytical competencies based on the results of self-development [18]; method "Self-Esteem Research" (Appendix Zh).

5. Self-regulatory-organisational criterion − assesses the level of self-organisation, self-regulation and strong volitional characteristics of the future agrarian in the organisation and implementation of self-development as a person and professional, formed competencies to manage this process, to control it; developed ability to self-development without external influence; self-control of activity; the presence of the ability to adjust their own actions based on the results of self-development, ability to self-government, reflexive and communicative activities based on the established experience in the agricultural sector.

Indicators of the levels:

High: High degree of self-organisation competences on the basis of self-regulation of activities, the presence of the desire to achieve the goal and the task of future agrarians' vocational personality self-development, confident solution of existing tasks in various ways, awareness of the personal sense of self-development, the future agrarian's positive attitude towards the process of self-development.

Medium: Medium degree of self-organisation competences based on self-regulation of activity.

Low: Uncertainty in self-abilities and capabilities, low degree of desire to achieve the planned results.

Diagnostics: analysis of the element of the electronic portfolio of future agrarians' vocational personality self-development, which describes the results of self-control, a reflexive assessment of own actions is carried out; analysis of testing in order to assess the formulation of emotional and strong volitional regulation of the process of future agrarians' vocational personality self-development, the method of study of the level of

subjective control (D. Rotter) [70]. In order to assess the integrative results of the process of future agrarians' vocational personality self-development, such methods as a comprehensive assessment of the efficiency of this process, tests of the future agrarian's readiness for self-development, a methodology for diagnosing the ability of the future agrarian to self-development and overcoming the barriers of development activities are used.

The set of described criteria allows us to comprehensively assess the effectiveness of professional and personal self-development of future specialists of the agrarian profile, to diagnose and monitor this process, continuous in its essence, it is organized to carry out the stated and forming stages of the pedagogical experiment. At the same time, it seems important to compare external expert assessments and self-esteem by the student himself of the results of his own development. Monitoring of professional and personal self-development of future specialists of agrarian profile should be carried out systematically in order to obtain objective individual dynamics of the main indicators of this process.

The developed system of criterion and diagnostic support serves as the basis for tutor support of the processes of development and self-development of the future agrarian on the basis of the analysis of qualitative and quantitative changes determined in the course of monitoring researches future agrarians' vocational personality self-development in current changing conditions of the educational environment.

Before we started forming control and experimental groups, we tracked the dynamics of changes in the motivational-value criterion depending on the course of students.

Using the diagnostics of motivational-value structure of personality (V. Herbachevskyi) showed the results of the research that under traditional conditions indicators of the future agrarians' level of the motivational-valuable criterion development were low (Table 5.3, Figure 5.8).

Table 5.3

Dynamics of Changes in Indicators of the Motivational-Value Criterion of Future Agrarians' Vocational Personality Self-Development Depending on the Course

Course / Indicators	1-2	3-4	Masters
Low	44	44	47
Medium	35	31	33
High	21	35	20

Source: Compiled by the authors on the basis of the survey.

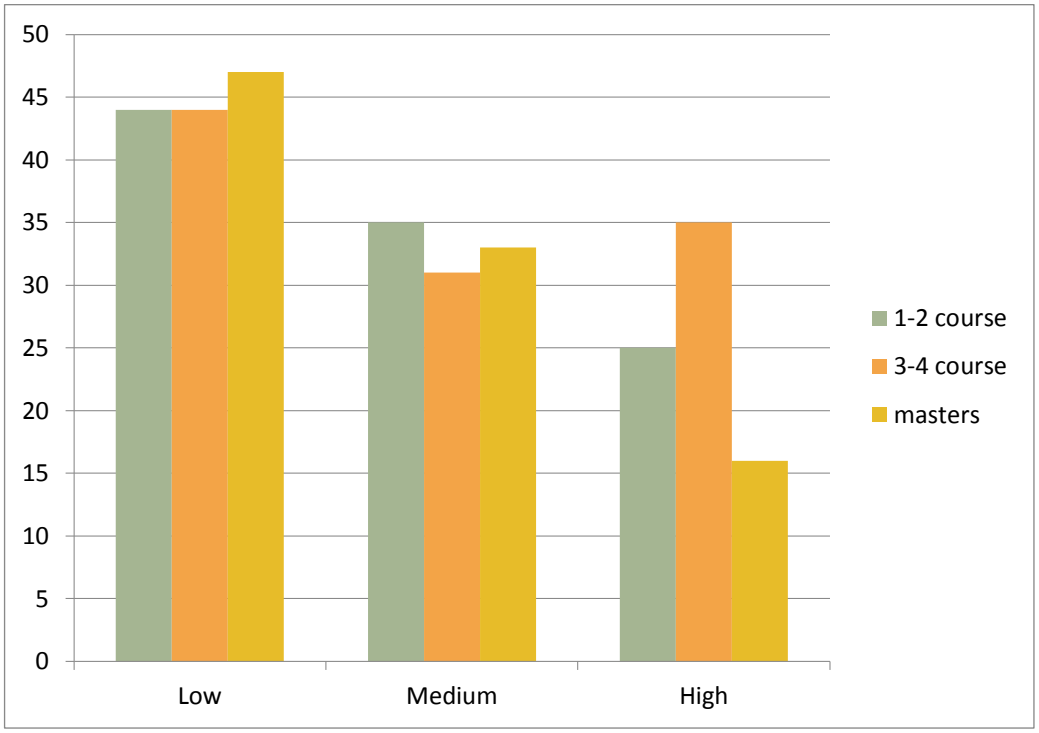

Fig. 5.8 Division by Levels of the Indicators of the Motivational-Value Criterion of Future Agrarians' Vocational Personality Self-Development Depending on the Course

Source: Compiled by the authors on the basis of the survey.

In general, low scores scored about 45% of the test subjects. This category of agrarian students is characterized by a manifestation of the motive of avoidance, reducing the level of internal and positive motivation of pedagogical activity. They did not seek to achieve complex goals and showed no initiative in their work. The average degree of severity of meanings, needs and motives of self-development of the future agrarian as a person and a professional is at the level of 33%. This means that such a future agrarian needs scientific-methodical and tutor support for future agrarians' vocational personality self-development.

However, students of the age category from 3-4 courses compared to other categories show a little more readiness to perform complex tasks and initiative. They are optimistic about the possibility of achieving good results in their activities. In our opinion, this, on the one hand, is due to the difficulties of adapting junior students, and on the other hand, with the experiences of agrarian masters regarding employment. In general, there were no serious differences in the indicators of the level of development of students-agrarians' motivational-value criterion in different age groups.

The next task was to evaluate these indicators in order to form control and experimental groups. According to the criteria developed by us, first of all, groups of agrarians-students studying in educational programmes were: "Agronomy", "Horticulture and Viticulture", "Forestry", "Garden and Park Economy", "Protection and Quarantine of Plants", "Ecology", "Agro-engineering", "Mechanical engineering, electrical engineering and electro-mechanics" with approximately the same level of professional and personal self-development of future specialists of agrarian profile: motivational and value; tentatively targeted; efficient and technological; valuation and analytical; regulatory and self-organization.

We have taken the following steps:

Preparatory: description of qualitative manifestations (characteristics, signs) that correspond to the levels of training of professional and personal self-development of future specialists of agrarian profile; designing a serial scale; selection of questionnaires, tasks for measuring belonging to a

particular level of training.

Direct experiment: performing tasks; analysis of answers, products of activity, checking tasks; transfer of qualitative data into quantitative. Mathematical processing of the obtained results. Interpretation of the results. We carried out the determination of the levels of preparation of candidates for their further comparison on a scale: high, medium, low level, in accordance with the methods described above.

After completing the tasks, two groups were divided: control – 62 persons and experimental – 58 persons with approximately the same level of professional and personal self-development of future specialists of agrarian profile, and checked for statistical significance of differences. The results of the preliminary assessment are given in the diagrams (Fig. 5.9, 5.10, 5.11, 5.12, 5.13).

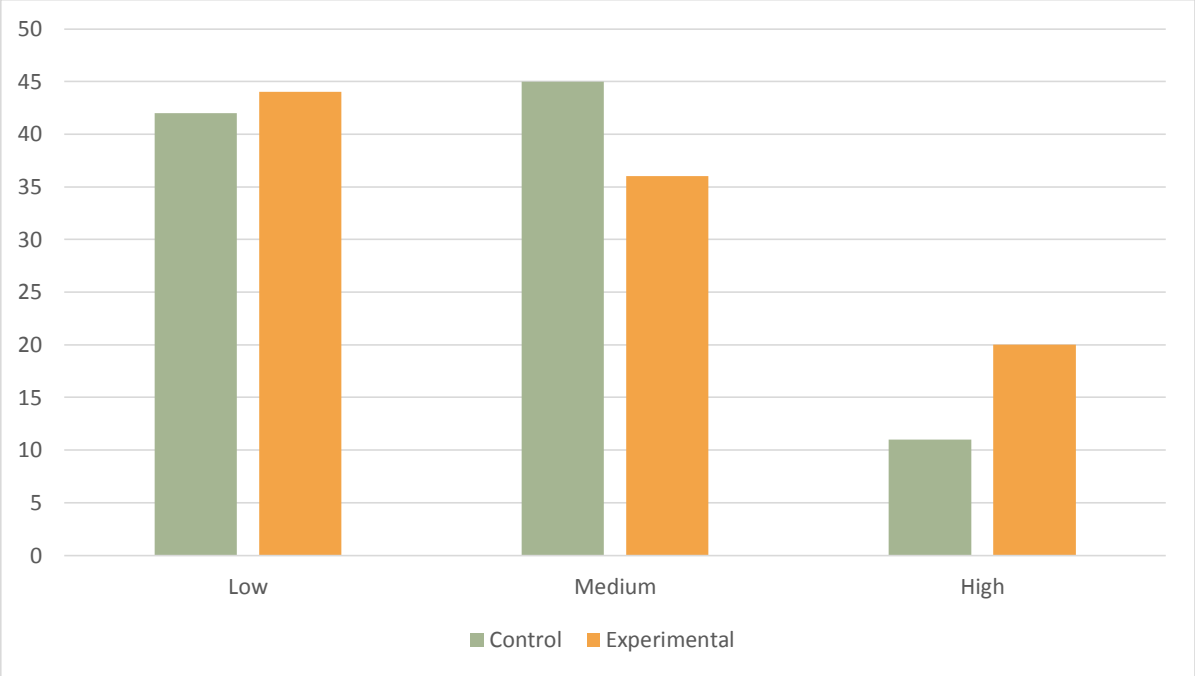

Fig. 5.9 Division by Levels of the Indicators of the Motivational-Value Criterion of Future Agrarians' Vocational Personality Self-Development at the Determinative Stage

Source: Compiled by the authors on the basis of the survey.

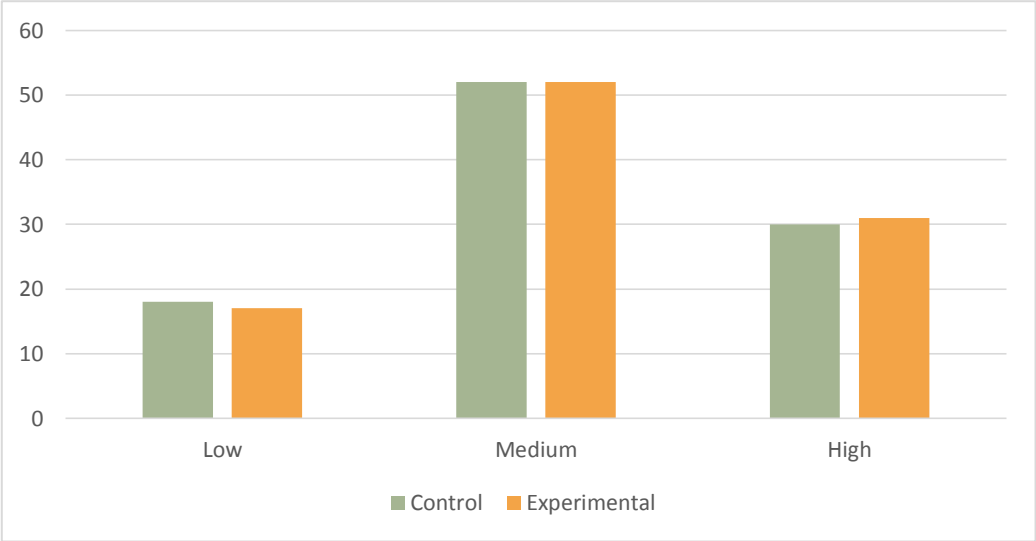

Fig. 5.10 Division by Levels of the Indicators of the Target-Focused Criterion of Future Agrarians' Vocational Personality Self-Development at the Determinative Stage

Source: Compiled by the authors on the basis of the survey.

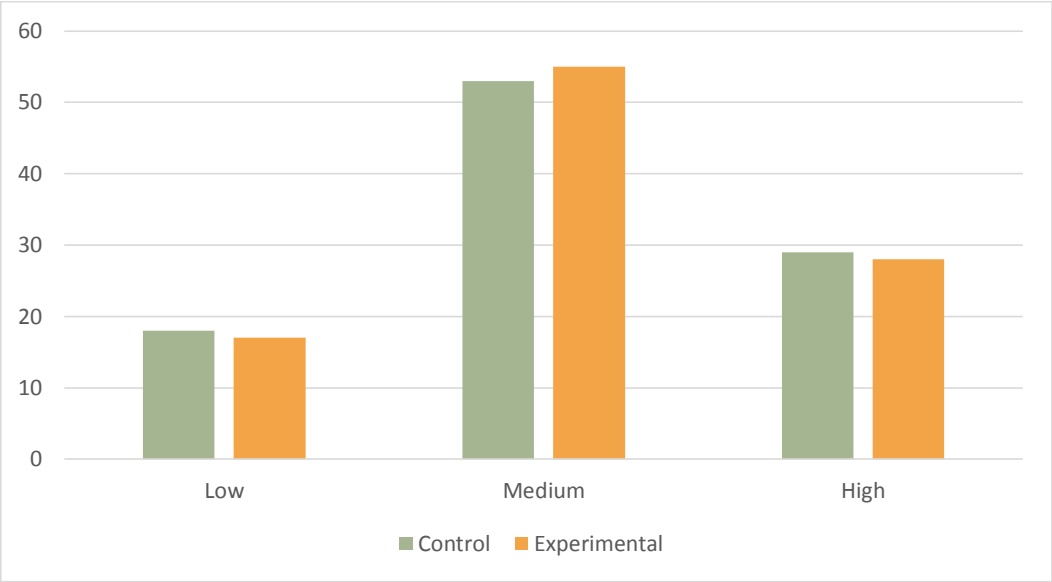

Fig. 5.11 Division by Levels of the Indicators of the Efficiently-Technological Criterion of Future Agrarians' Vocational Personality Self-Development at the Determinative Stage

Source: Compiled by the authors on the basis of the survey.

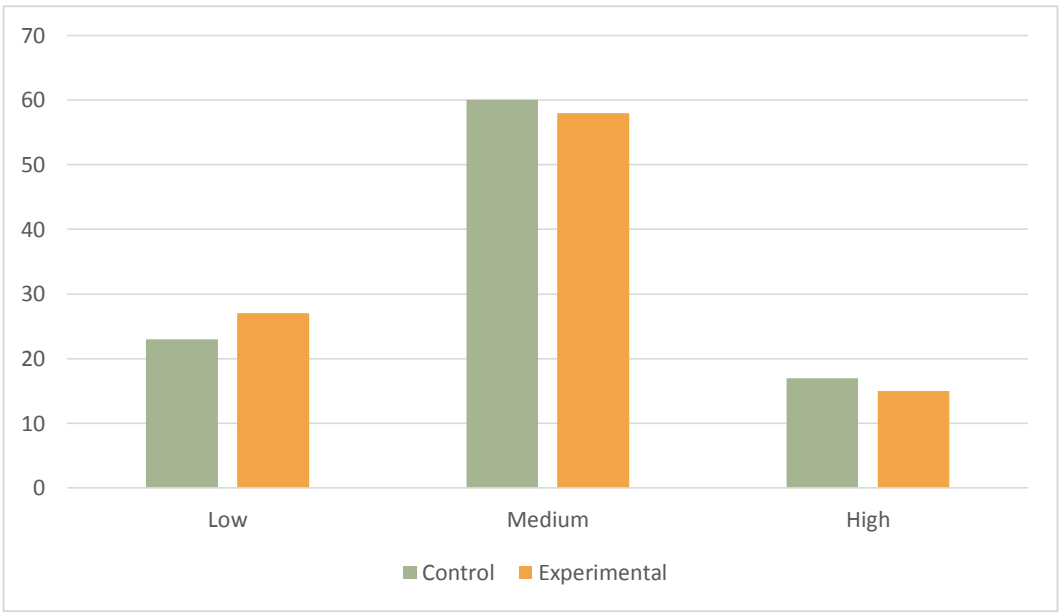

Fig. 5.12 Division by Levels of the Indicators of the Evaluation-Analytical Criterion of Future Agrarians' Vocational Personality Self-Development at the Determinative Stage

Source: Compiled by the authors on the basis of the survey.

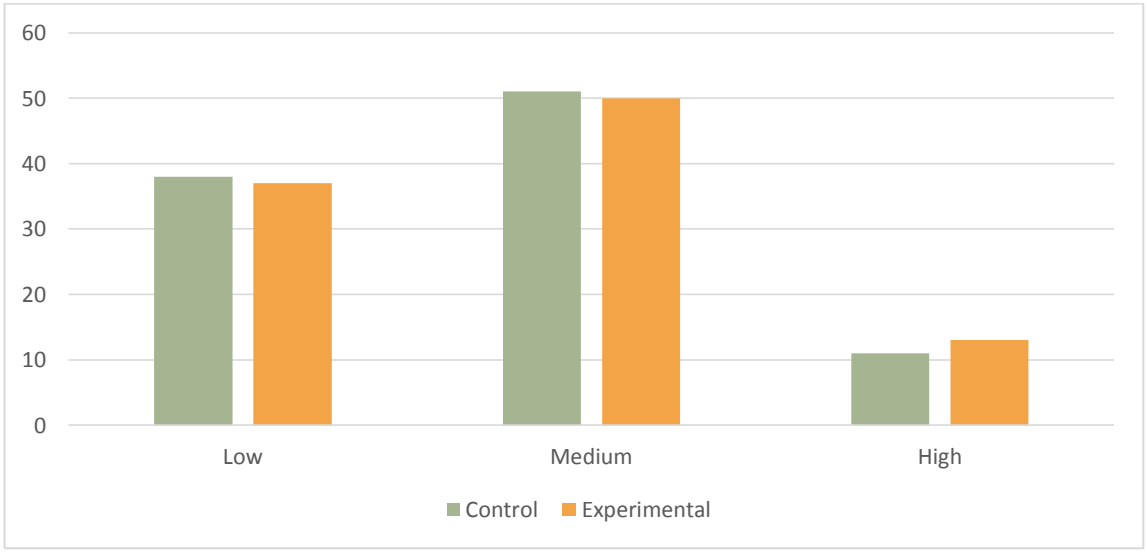

Fig. 5.13 Division by Levels of the Indicators of the Self-Regulatory-Organisational Criterion of Future Agrarians' Vocational Personality Self-Development at the Determinative Stage

Source: Compiled by the authors on the basis of the survey.

The data indicate that the division by the levels of indicators of all criteria of future agrarians' vocational personality self-development at the

determinative stage in the control on experimental groups was approximately the same.

For more accurate confirmation, we formulated the following hypotheses:

H0: the levels of the indicators of all criteria of future agrarians' vocational personality self-development in the control and experimental groups do not differ; different results of individual tasks are random.

H1: Different levels of forming of indicators of all criteria of future agrarians' vocational personality self-development in control and experimental groups are not random; the levels of forming differ significantly. Assessment of mathematical expectation was carried out through the distribution of Student.

To test the hypothesis, the study indicator was compared in selected groups: control (CG) and experimental (EG).

Appendix Z provides a fragment of the working document with appropriate calculation, which contains the verification of hypotheses. In order to coordinate quantitative and qualitative indicators, to carry out mathematical processing of qualitative data, we have brought the indicators obtained according to the outlined methods to a single 12-points scale. High level: 9-12 points, average: 5-8 points, low: 0-4 points.

The obtained numeric values indicate that the average values of indicators in accordance with 7.71; 7,328. We also estimated the values that characterize the deviation of knowledge assessment levels from the average value: dispersion (2,391; 2,516). Thus, preliminary results of comparing the criteria of professional and personal self-development of agrarian students indicate that the numerical characteristics of the studied indicators in both groups are approximately the same. For a more accurate assessment, the following steps were taken.

In the case of comparing the control group (CG) and the experimental (EG) we found the quantum distribution of Student's He=1,645 and Xl= –1,645 and the sample value φ=1,335. Thus, the implementation of inequality -1,645<1,341<1,645 became the basis for accepting the

hypothesis: the levels of the forming of indicators of all criteria of future agrarians' vocational personality self-development in control and experimental groups do not differ; different results of individual tasks are random. The H0 zero hypothesis is accepted.

At the same time, we understood that the personal professional development of a specialist has its limit and is associated with overcoming certain external and internal psychological barriers. Determining the professional basis for the formation of professional and personal qualities of future specialists, we relied on the position justified by N. Nychkalo: "professional pedagogy studies the patterns and laws of human education of the profession and the formation of professional and socially important personality qualities of individual workers and production personnel in general for various industries, agriculture and services, their professional competencies taking into account modern and promising requirements market economy" [46, p. 27].

The focus of pedagogical interaction on the formation of professional and personal qualities of future specialists is dependent on the level of psychological and pedagogical training, modernization processes of higher education institutions, the introduction of innovative pedagogical technologies of education and education. The readiness of the future agrarian to form professional and personal qualities is carried out during its professional and personal development at the stages: self-esteem, goal determination, planning of results, development of an action program, in accordance with the stated goal, gradual summarising, self-examination and self-analysis and further planning. The problem of readiness for activities is one of the fundamental ones.

Readiness – in a narrow sense, smoothed out as a state of mobilisation of all physiological systems of a person, which ensures the effective implementation of certain actions, and in a broad sense as a set of professionally determined requirements for a person. Readiness for activities is considered as a purposeful expression of the individual, including her beliefs, views, relationships, motives, feelings, strong-willed

and intellectual qualities, knowledge, skills, skills, settings [7].

The content of professional readiness for the formation of professional and personal qualities of specialists in the agricultural sector is outlined by us methodological approaches: systemic, personal-active, competent, axiological and synergistic. A systematic approach involves distinguishing and structuring the professional and personal qualities of future specialists, determining the composition and connection between individual elements of competencies and competences. The active approach ensures the inclusion of abilities and skills in the competences that provide a practical focus on mastering competencies and implementing them. The value approach is aimed at distinguishing the professionally important and personal qualities of future specialists as a value basis of professional activity.

Therefore, in addition to comparing the two groups according to the criteria we developed, we additionally compared in the control and experimental groups the level of self-development ability to diagnose indicators such as “Desire to know you as a professional” and “Desire to improve your professional knowledge and skills”. According to V. Pavlov's methodology, the test “Readiness for self-development" was used [84] (Appendix D).

Interpreting the findings, it was found that the majority of control respondents (44.1%) and experimental (41.8%) groups have a motivation for self-knowledge, but are not ready for self-change. This combination means that the tester wants to know more, but does not yet have the skills of self-improvement (square D). They can improve themselves, but 19.1% and 20.6% of people, respectively, do not want to know themselves. The tester has greater opportunities for self-development than the desire to understand self-concept. In this case, you should think about the need to begin the development of the profession of self-development (square “A”).

At a high level of development of “readiness” was 20.5% of the control and 21.7% of the experimental group. Their result is “I want to know myself and I can change”. These are most favourable combination

for further vocational personality self-development. The desire to learn more and more deeply is combined with the need for self-development (square “B”). There was also a small percentage (2%), who are not inclined to self-knowledge and do not want to change something and work on themselves (square “B”).

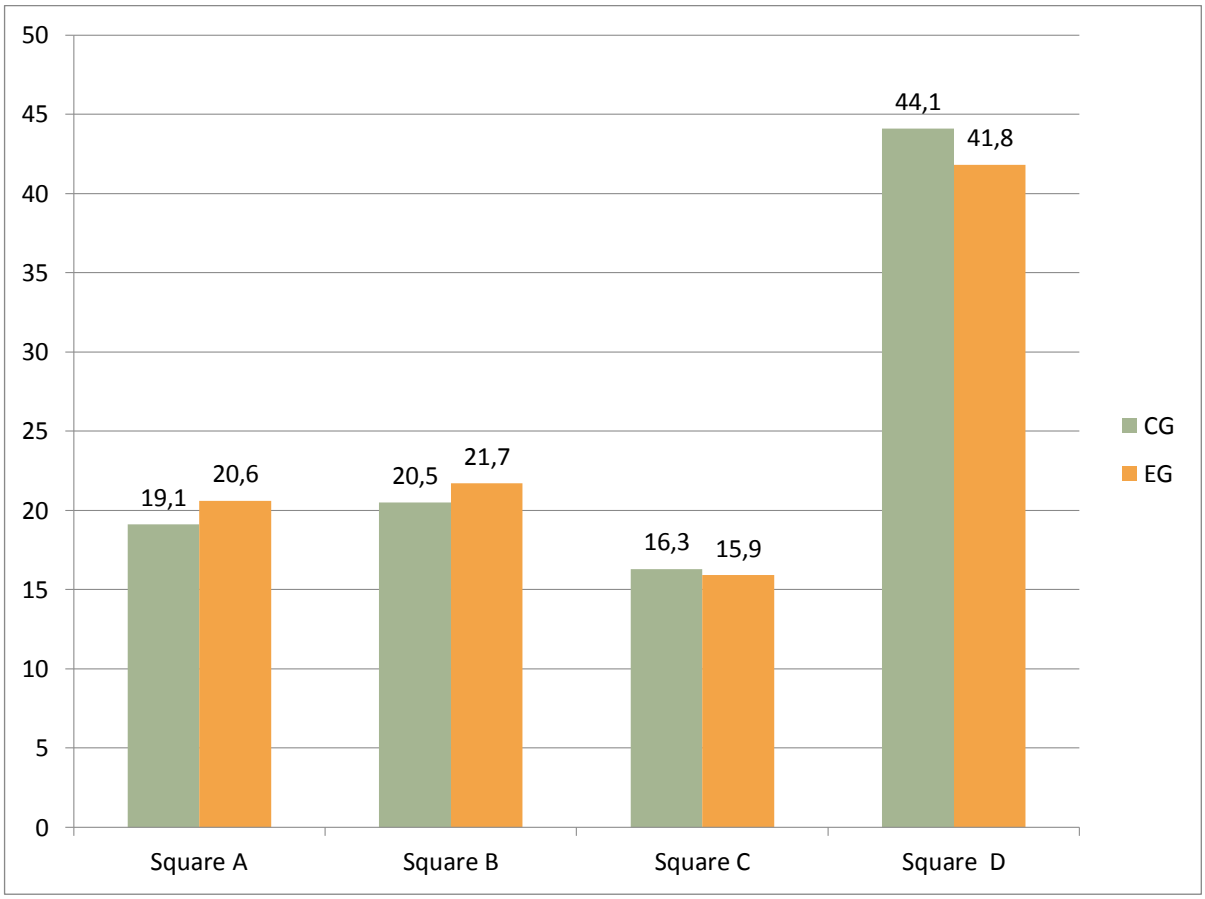

Fig. 5.14 Division by Levels of the Indicators of the Ability for Self-Development

Source: Compiled by the authors on the basis of the survey.

The results of the survey showed that respondents have a high level with active self-development in an unambiguous amount - 27% and 25% respectively, of control and experimental groups. Also, in half of the cases, the system of self-development is characteristic, which is formed depending on external conditions (average level) - 51.5% and 55.2% of the studied. In the course of the forming experiment, there was not just a statement of the level of formation of the ability to any activity or development of various qualities and competencies, but their active

formation. To do this, created a situation of the experiment, which allowed to carry out a purposeful forming effect.

In the process of experimental work at the stage of the forming experiment, the means reflexive, both personal and collective environment, formed the idea of farmers about the semantic basis of professional activity, about problems that need to be promptly solved, about the most effective ways of self-education on the basis of their own activity, creativity, initiative and high motivation to activity. To this end, the planning of classes in experimental groups was carried out with a focus on the use of mainly personal and active technologies, which are considered as the basis of the process of formation of reflexive skills of specialists, create motivation for personal and professional development.

As a rule, the content of these technologies were: business games, pedagogical laboratories, analysis of situations, work with hypertexts, design and modelling, the use of multimedia learning tools, video materials, presentations, creative reports, project protection, internship, study of advanced pedagogical experience. The leading place was occupied by the presentation of the electronic portfolio "Strategy of my professional and personal self-development" in the following components: diagnostic, informational and motivational, organizational and practical, individual-creative, generalized-final, reflexive.

In the process of classes in experimental groups, a systemic model of training, active training forms of organizing classes on an active basis have been implemented. This allowed to include listeners in search and research activities.

This defined the main role of the problematic-activity approach in the training of agrarian students to accumulate personal experience in developing activities. The purpose of organizing classes in experimental groups was the formation of personal, projecting, organisational and managerial, communicative and research competencies of agrarian students. Active training forms of classes were the basis for the formation of professional competence of the future agrarian on the basis of personal-

oriented training. During the training sessions, students mastered various activities and developed their competencies.

However, the difficulty was the selection of teachers who are able to competently and effectively organize these trainings. These are mainly heads of scientific and methodological commissions of faculties, representatives of the educational and scientific centre of VNAU, leading teachers of departments. During the instructive and methodical classes, approaches to use in classes were demonstrated: active forms of education; group forms of training; collective forms of work; active approach; problematic learning; information and communication technologies;

As a rule, during the organizational and active game, the students were divided into groups, selected an expert, a generator of ideas, a consultant, a reviewer, etc. in the form of a discussion, brainstorming, studying the relevant theory and materials from work experience, concentrated in educational manuals, lectures, students gained experience in independent organization of an interactive learning environment.

The problems of personal-oriented learning were considered and implemented in the course of experimental work as part of a single chain of the process of introducing innovative technologies into the educational process. By interactivity, we understood the ability of the individual to interact or be in conversation mode, dialogue with anyone (person) or anything (for example, a computer). Interactive learning was, first of all, as a dialogue training, during which the interaction of not only the teacher and students is carried out, but also the active educational interaction of students with each other.

The implementation of interactive technologies in experimental groups allowed to carry out the most complete coverage of students with active cognitive activity, effective educational interaction in solving complex problems, situational pedagogical problems. At the same time, the use of: role-playing, professional educational games was practiced; presentation and substantiation of individual creative approach to solving typical pedagogical problems; collective expertise of generally recognized

effective pedagogical innovations; educational and professional modeling, etc.

The use of active and interactive methods of training was carried out already at the initial stages of the organization of classes. The presentation of the lecture material was carried out with a focus on the developing function, which involves stimulating not only the memorization of the material, but also, above all, the active mental activity of the listeners. Lectures were held in a dialog form, with the inclusion of problematic issues that stimulate the search and discussion nature of the presentation of the material. Each theoretical activity was considered as a source of cognitive activity, which includes the mental activity of the listener and directs it in the right direction.

The introduction of the technology of professional and personal self-development of future specialists of the agrarian profile also provided for a practical orientation. This was carried out through the widespread use of active forms of education, which involve the active development of competencies of agrarian students in the field of organization of productive activities of students in classes. The use of interactive technologies in the educational process has shown with sufficient obviousness that their application contributes to:

activity of perception of the educational and pedagogical situation; development of interest in the subject under study, the problem analyzed; strengthening motivation to search activities, critical thinking; intensive development of intellectual and emotional properties of the individual; the ability to analyse the partner's activities for the purpose of interaction in the cognitive process; development of positive critical thinking; awareness of personal responsibility for the results of joint activities to solve educational and research tasks.

It is important to note that in the process of introducing the technology of professional-personal self-development of future specialists of agrarian profiles, we took into account that the development of reflexive abilities of the future agrarian, a problematic approach to the organization of classes,

the use of interactive teaching methods are designed to form a basis for the formation of a search, research style of professional activity of the future agrarian. Search activity naturally inherent in each person is the psychological basis of research activities of the future agrarian. It manifests itself not in typical, standard situations, but, as a rule, in problematic ones that require original approaches to solving them.

Non-standard, rapid change of goals, tasks and landmarks - properties are especially characteristic of agricultural activities. It requires intuition and creativity. Since each agrarian faces current and promising problems, the possession of research methods, search abilities or, as is customary, research competence is relevant. The basis of research competence are research abilities (skills) that are manifested in the research behavior of students: see problems, ask questions, put forward hypotheses, define concepts, classify, observe, conduct experiments, draw conclusions, structure material, explain, prove and defend their ideas

The results of the study at the stated and control stage of the experiment on the method of diagnosis of motivational and value structure of personality (author V. Herbachevskyi) showed that before the introduction of the technology of professional-personal self-development of future specialists of agrarian profile indicators of the level of development of motivational and valuable criterion in two groups were low (Table 5.4, Fig. 5.15).

The average in the control group remained at 41%. This means that they need scientific and methodological and tutor support for professional personal self-development. In the experimental group, the averages decreased significantly to 15% due to the transition of respondents to a high level (20% of them turned out to be). These individuals had a pronounced internal, positive motivation, motivation to change current activities and self-esteem. They began to show greater readiness to perform complex tasks and initiative. They were optimistic about the possibility of achieving good results in their activities.

Table 5.4

Dynamics of changes in indicators of the motivational-value criterion of future agrarians' vocational personality self-development at the end of the formative experiment

Levels of indicators of the motivational-value criterion	Dynamics of changes %					
	Control group			Experimental group		
	Determinative stage	Control stage	Change	Determinative stage	Control stage	Change
Low	44	40	-4	45	25	-20
Medium	34	41	+7	35	15	-20
High	22	19	-3	20	60	+40

Source: Compiled by the authors on the basis of the survey.

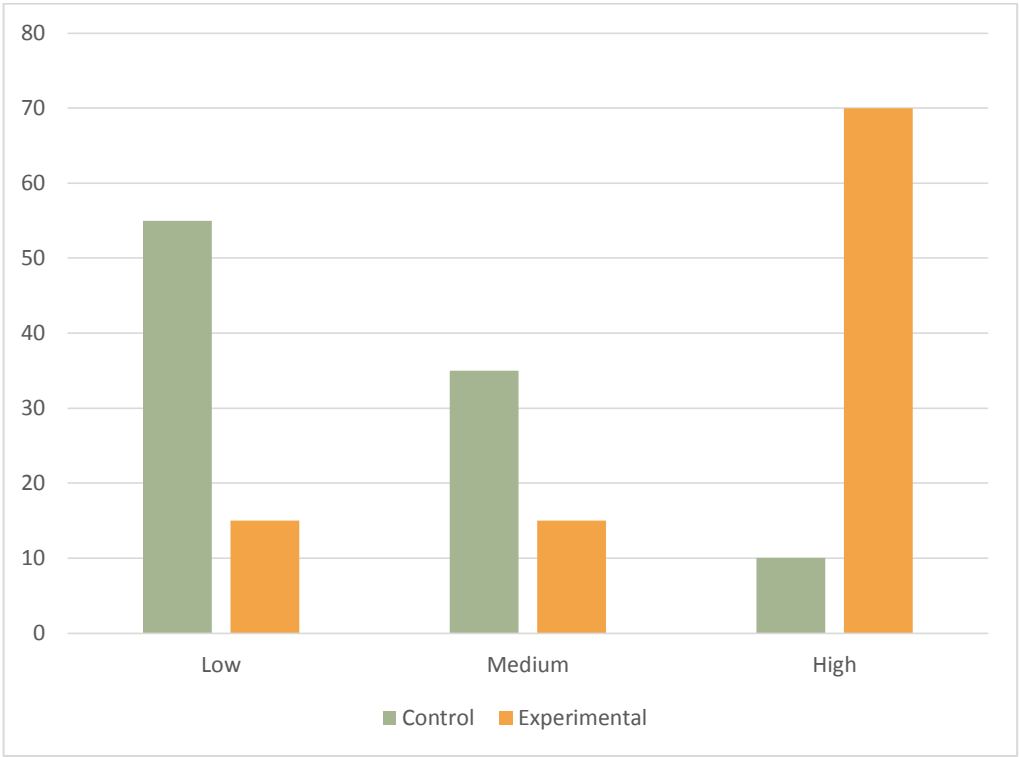

Fig. 5.15 Dynamics of changes in indicators of the motivational-value criterion of future agrarians' vocational personality self-development at the control stage

Source: Compiled by the authors on the basis of the survey.

So, as can be seen from the table and diagram, the low level of development of indicators of motivational and valuable criterion in the control group remained 40%, while in the experimental decreased by 20% (25% of people remained). This category of agrarian students is characterized by a manifestation of the motive of avoidance, reducing the level of internal and positive motivation of professional activity. They did not seek to achieve complex goals and showed no initiative in their work. In them, the meanings, needs and motives of self-development are weakly expressed, a low degree of interest of the future agrarian in its development has been revealed.

In general, in the experimental group, 40% passed to the higher rien, while in the control special changes were not detected (-3%). In the experimental group, 60% of agrarian students showed a high degree of severity of meanings, needs and motives of personal and professional self-development, activity and personal interest in the process of self-development. In the control group of such agrarian students there are only 19%. Therefore, in the experimental group, the level of indications of the motivational-value criterion increased significantly compared to the results of the control group.

The level of development of motives of professional and personal self-development of the future agrarian has improved; personal meaningful meanings and nature of existing motives; degree of comprehension of difficulties in professional activity, increased the level of needs for personal and professional change; there was an awareness of the value of self-development as the supreme meaning of the future agrarian; improved ability to systematic and continuous self-improvement. For a more accurate comparison of the results, the t-criterion was used. We formulated the zero and alternative hypotheses as follows:

H0: Different levels of forming indicators of motivational and valuable criterion of professional-personal self-development of agrarian students in control and experimental groups are random, the levels of forming do not differ significantly. H1: the levels of forming indicators of

motivational and valuable criterion of professional-personal self-development of agrarian students in control and experimental groups differ, different results of individual tasks are not random.

For the formalized processing of data, we transferred the nominal scale to the scale of order, putting in line with the indicators of motivational and valuable criterion of professional and personal self-development of agrarian students points 1, 2, 3, 4, 5, 6. High level: 5-6 points, average: 3-4 points, low: 0-2 points. In the future, for all criteria, the results were processed according to the already described methodology at the stage of formation of control and experimental groups (Annex K).

The corresponding selective value of the criterion is (K; E)=-4,36) indicates that the zero hypothesis is rejected, that is, the indicators of motivational and valuable criterion for professional-personal self-development of agrarian students in the groups under study differ. It is thanks to the introduction of the new methodology that the number of agrarian students at the highest levels has increased.

In addition, the introduction of the proposed technology of professional and personal self-development of future specialists of agrarian profile helped students to understand their relationships with others, comprehend the orientation of social and psychological institutions and change them. In the experimental group, the ranks of values directly related to the future professional activities of students have changed: the level of significance of such values as "interesting work", "the beauty of nature and profession (experiencing beauty in nature and in the profession)", "productive life (the fullest use of their capabilities, strengths and abilities)" has increased as much as possible. At the stage of adaptation, the dynamic component of self-determination becomes dominant, so freshmen have a large deviation and discrepancy with the structure of value orientations inherent in this age and a sharp polarization of the ranks of values in relation to high school students.

For example, the value row of future agronomists has the following picture: primacy is given to the value-goal of "active activity life", the

second place is occupied by “wisdom of life, maturity of judgments and common sense achieved by life experience”, then “interesting work”, “love for the earth”, “a sense of pride and deep respect for agricultural labour” and “knowledge of nature”. In future agronomists, active values (active activity life, interesting work) are on a one-line with passive values (wisdom of life, maturity of judgments and common sense achieved by life experience, knowledge), in what is seen as a certain contradiction.

Future agricultural engineers have a slightly different picture: "life wisdom, maturity of judgments and common sense achieved by life experience", "interesting work", "active activity life", "health", "materially secure life". In this group of students, individual values are dominant (active activity life, health, materially secure life). In the youth environment, as in the modern world as a whole, there is no single hierarchy of values. Today, labour values as a factor of professional and personal self-development of farmers are not sufficiently enshrined in the structure of consciousness and may not always be motivators of professional activity. At the same time, today it is possible to observe the existence of such processes as the succession of traditional values of love for work in Ukrainian culture, and the spread of consumer interests.

The obtained results can be explained by the fact that in the current socio-economic situation in the country, more requirements are made to the individual, his individual abilities, the role of material well-being increases, which turns out to be the basis for the development of students' sense of self-importance and positive attitude to themselves. Students' interest in a high level of well-being is explained by high needs and their low social security, which entails the increased significance of the complex of economic values.

Thus, we see that as a result of purposeful work with students of the experimental group, it was possible to achieve productive changes in their value system; moreover, in this system there is no ambiguity, students are dominated by both individual and personal values, and values of business relations, values associated with their future profession. Experimental data

showed the greatest changes in the modality of students' relationships to themselves and the world around them. The amount of positive assessments by students of the experimental group of different aspects of the world after conducting developing classes is almost twice as high as before they began. (respectively, the level of negative ratings decreased).

On the assn. of the above criteria, expert evaluation of indicators of the approximate-target criterion of professional and personal self-development of agrarian students, the dynamics of changes is presented in Table 5.5. and in Fig. 2. 5.16.

Table 5.5

Dynamics of changes in indicators of the target-focused criterion of future agrarians' vocational personality self-development at the end of the formative experiment

Levels of the Indicators of the Target-Focused Criterion	Dynamics of changes %					
	Control group			Experimental group		
	Determinative stage	Control stage	Changes	Determinative stage	Control stage	Changes
ability to set effective goals						
Low	16	12	-4	15	1	-14
Medium	49	46	-3	50	35	-15
High	35	42	+7	35	64	+29
action planning						
Low	14	11	-3	13	7	-6
Medium	53	48	-5	51	26	-25
High	33	41	+8	36	67	+31
forecasting the results of self-development						
Low	24	18	-6	23	10	-13
Medium	53	45	-8	55	38	-17
High	23	37	+14	22	52	+30
mean values of the components						
Low	18	14	-4	17	6	-11
Medium	52	46	-5	52	33	-19
High	30	40	+9	31	61	+30

Source: Compiled by the authors on the basis of the survey.

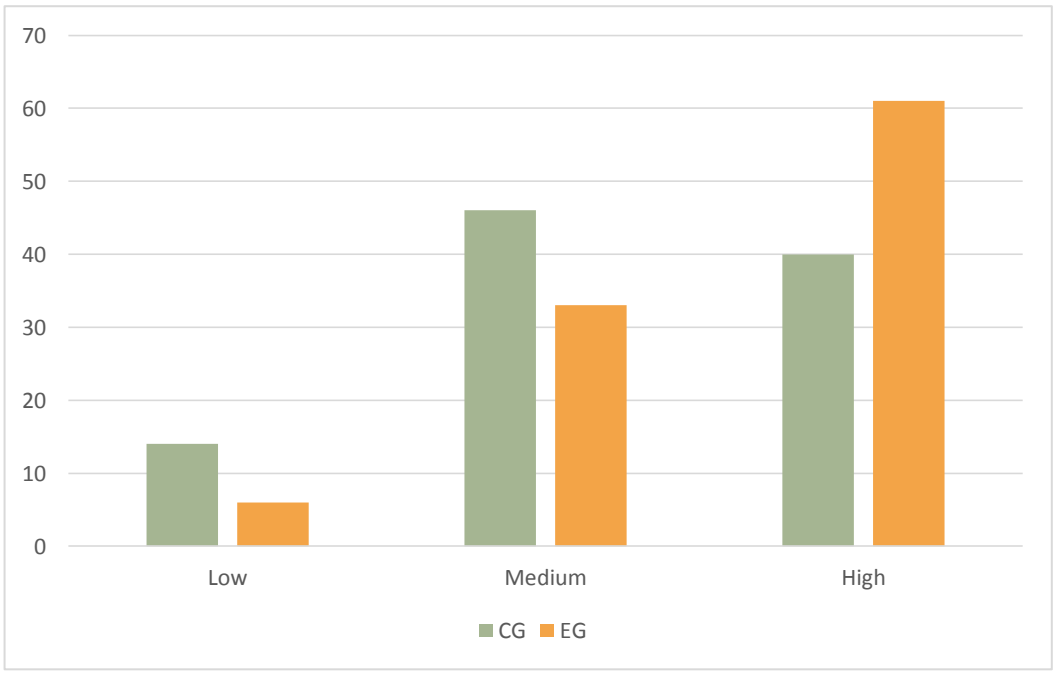

Fig. 5.16 Distribution by levels of the target-focused criterion of future agrarians' vocational personality self-development at the control stage

Source: Compiled by the authors on the basis of the survey.

Figure 5.15 indicates that after the introduction of the technology of professional and personal self-development of future specialists of the agrarian profile, the distribution by the levels of the form of indicators of the approximate-target criterion of professional and personal self-development of agrarian students has changed significantly. As can be seen from table 5 indicators of a high degree of development of projecting competencies that determine the ability of effective laying, 64% of students-agrarians of the experimental group and only 42% of the control group, action planning 67% and 41%, respectively, forecasting the results of self-development 52% and 37%.

Approximately half of the students-agrarians of the control group and a third (part of them went to the highest degree) of the experimental remained the average degree of forming of all the projecting competencies of the future agrarian. This means that they need tutor support at the stage of designing a professionally developing trajectory.

At a low level, which indicates that the student cannot project the

process of his own development, as well as to make a choice of technology for the implementation of the tasks, .significantly reduced the number of students of the experimental group, while in the control group these indicators have changed weaker. Therefore, we can conclude that the indicators of the ability to carry out these-assignments as designing at a high level, and formulate priority tasks of self-development, give forecasts in achieving real results, project a varied individual professional development trajectory, determine technologies, methods, techniques and means of self-development after the introduction of the technology of professional and personal self-development of specialists of future agrarian profile This confirms its effectiveness.

For a more accurate comparison of the results, the methodology described above was used to determine the motivational and target criterion according to The t-criterion. Matching selective value of the criterion – (K; E2)=10,629, indicates that the zero hypothesis is rejected, that is, the indicators of the approximate-target criterion of professional-personal self-development of agrarian students in the groups under study (Annex L). The dynamics of changes in the indicators of the effective and technological criterion of professional and personal self-development of agrarian students at the end of the forming experiment also confirmed significant changes in the experimental group.

The experts assessed the quality of implementation of the projected individual professional-development trajectory of students-agrarians of control and experimental groups, presented in the form of an electronic portfolio "Strategy of my professional and personal self-development" according to the following criteria: diagnostic, information-motivational, organizational-practical, individually creative, generalized-final, reflexive.

In view of this, in the development of individual programs of professional self-development of future farmers, we used the technology of self-projection. The following sections were proposed for the preparation of the student's self-education program: my values; My goals. my "I-concept"; my perspective (strategy); my development tasks (tactics): my

actions (cognitive, personal, etc.).

The program of professional self-development of future farmers is marked by actions regarding: self-diagnostics of acquired professional knowledge and skills in professional self-development; mastering the means of self-regulation and professional self-development: setting tasks of self-development, choosing the content and technologies of self-realization and self-actualization; exchange of professional self-development experience within the framework of activities in creative groups. Individual electronic portfolios passed the protection procedure in the form of presentation according to the following criteria: clarity and logic of material presentation; argumentability of the position; emotionality; ability to defend their position or adjust during the discussion process.

Diagnostics was carried out in two stages: an experimental group of students (in the form of filled matrices) and a group of experts on a 100-point scale, which was translated into a scale – low, medium, high level. In addition, the effectiveness was evaluated in the following categories: educational and methodological activities, scientific and innovative, organizational and educational. Educational and methodical activity was evaluated by the results of success, the introduction of new programs, methods, techniques, curiosity to professional literature, experience of more experienced friends, the results of visiting seminars, webinars, master classes, trainings, attending advanced training courses, developing new resources based on their experience.

Scientific and innovative activity was evaluated according to the results of visiting scientific and practical conferences, seminars, webinars, publication of articles in scientific journals, collections, in internet publications, speeches at scientific and practical conferences with reports. Indicators of organizational and educational activities mainly was planning, organization, holding and participation in educational events, celebrations, excursions, social activities, participation of students-agrarians in university events.

Table 5.6

Dynamics of changes in indicators of the efficiently-technological criterion of future agrarians' vocational personality self-development at the end of the formative experiment

Levels of the Indicators of the efficiently-technological criterion	Dynamics of changes %					
	Control group			Experimental group		
	Determinative stage	Control stage	Changes	Determinative stage	Control stage	Changes
educational and methodical activity						
Low	18	20	+2	16	3	-13
Medium	50	48	-2	50	29	-21
High	32	32	0	34	68	+34
scientific and innovative activity						
Low	13	11	-2	11	6	-5
Medium	56	59	+3	61	51	-10
High	31	30	-1	28	43	+15
organisational and educational activities						
Low	23	16	-7	24	3	-21
Medium	53	45	-8	55	29	-26
High	24	39	+15	21	68	+47
mean values of the components						
Low	18	16	-7	17	4	-13
Medium	53	51	-7	55	37	-18
High	29	34	+14	28	59	+31

Source: Compiled by the authors on the basis of the survey.

Therefore, as can be seen from the diagram, the level indicators at the fixed stage in both groups are approximately the same.n After the forming experiment in the control group, no significant changes were recorded. In this group, 16-18% of agrarian students demonstrated low effectiveness of the process of their own development, the presence of difficulties in the independent implementation of the individual trajectory of professional and personal self-development. While the control group significantly

reduced the number of students-agrarians at a low level (from 17% to 4%).

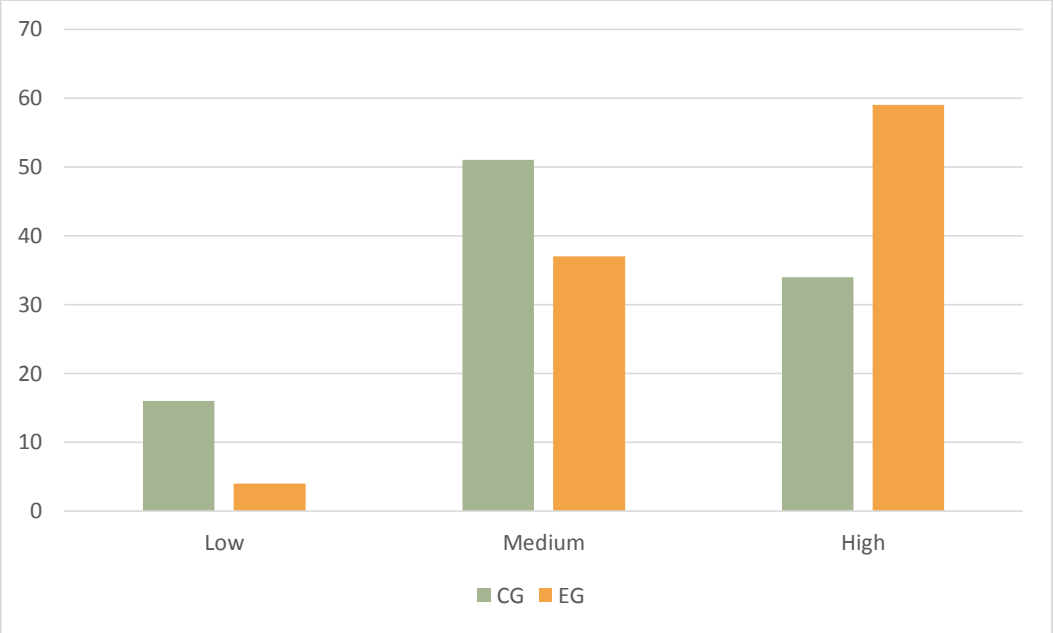

Fig. 5.17 Division by levels of forming indicators of the efficiently-technological criterion of future agrarians' vocational personality self-development at the control stage

Source: Compiled by the authors on the basis of the survey.

At the stated stage, about half of the students-agrarians demonstrated an average degree of productivity according to the results of the analysis of self-development products. However, in the experimental group, after the completion of the forming experiment, some of them moved to a high level and at an average level only 37% of 55% remained. The high productivity of the process of professional and personal self-development based on the analysis of teaching products was found in 59% of the students-agrarians of the control group and in 34% of the experimental, compared to 28% and 29% at the initial stage. Therefore, the control group has significantly improved the ability to implement in a specific practical activity a projected individual professional development trajectory in order to achieve the result of its own development.

In particular, this was found in the development of communicative

skills; positive self-concept, self-confidence, dedication, perseverance, emotional stability, strong-willed self-control, self-discipline, self-organization; ability to effective self-government; responsibility for their own professional self-development. Statistical processing indicates that the indicators of the effective and technological criterion of professional and personal self-development of agrarian students in the groups under study differ. Matching selective value for criterion φ – φ(K; E_2)= -4,688 (Додаток М).

The evaluation and analytical criterion determines the levels of the form of analytical and reflexive competencies necessary for an objective assessment of the results of professional and personal self-development; the desire to evaluate the results of professional and pedagogical activities and self-development in dynamic conditions of the educational environment. The indicators of the evaluation and analytical criterion were determined by experts on the basis of the portfolio and methodology for assessing analytical competencies based on the results of self-development and on the basis of individual elements (ability to analyse and self-analysis) a diagnostic map for the study and self-assessment of the activities of the future agrarian. The methodology for assessing analytical competencies based on the results of self-development was based on the following indicators: breadth and depth of professionally oriented knowledge; transformation of existing knowledge, skills and technologies of analytical activity; stability of psychological interaction, combination of value ideas about competence and analysis of theoretical and practical level of knowledge.

Table 5.7

Dynamics of changes in the indicators of the evaluation-analytical criterion of future agrarians' vocational personality self-development at the end of the formative experiment

Levels of the Indicators of the evaluation-analytical	Dynamics of changes %					
	Control group			Experimental group		
	Determinative stage	Control stage	Changes	Determinative stage	Control stage	Changes
mean values of the component						
Low	23	22	-1	27	12	-15
Medium	60	60	0	58	43	-15
High	17	18	+1	15	45	+30

Source: Compiled by the authors on the basis of the survey.

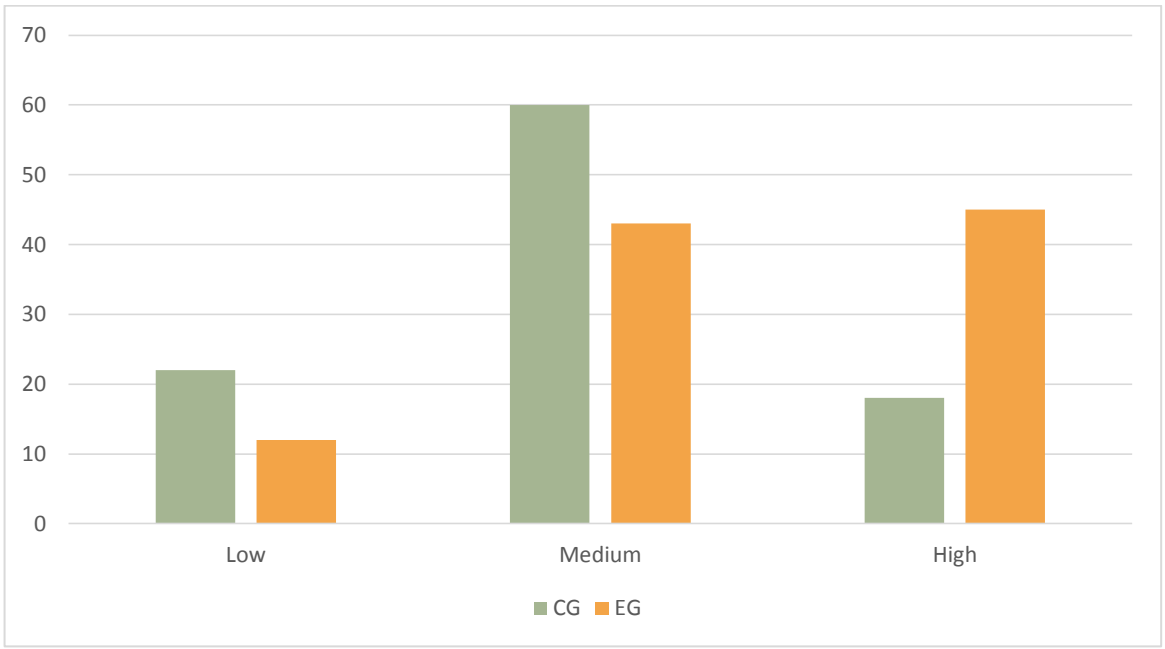

Fig. 5.18. Distribution by levels of forming indicators the evaluation-analytical criterion of future agrarians' vocational personality self-development at the control stage

Source: Compiled by the authors on the basis of the survey.

At the stated stage, the indicators of the evaluation and analytical criterion of professional and personal self-development of agrarian students in both groups are approximately the same. So, as can be seen from Table 5.7. and charts 5.18. after the completion of the forming experiment, the number of agrarian students who showed a low degree of forming of analytical competencies, the inability to conduct an objective assessment of the results of professional activity, difficulties in assessing the results of professional and personal self-development in the control group practically did not change (23%, 22%). In the experimental group of such agrarian students decreased by 15%.

It is worth considering that the average degree of forming of analytical competencies under traditional conditions that allow you to reflex according to the results of professional-personal self-development has 60%. For the introduction of the technology of professional and personal self-development of future specialists of the agrarian profile, 15% of them have moved to a high level. As a result, 45% of students-agrarians of the experimental group were able to carry out an adequate assessment of the results of self-development at a high degree of form of analytical competencies, while only 18% remained in the control group

In addition, a group of experts determined that after the completion of the forming experiment, the students of the experimental group showed the best skills to study the team and personality, to analyse the experience of other agrarian students in order to communicate and transfer effective forms, methods and techniques to the practice of their work, based on the analysis of the results achieved, to put forward and justify new tasks, to diagnose the state of training of students, to properly evaluate the activities of students, analyze specific pedagogical situations, approach from professional positions to the analysis of life situations, identify the effectiveness of educational activities, teach colleagues the introspeka of their activities.

Statistical processing indicates that the indicators of the evaluation and analytical criterion of professional and personal self-development of

agrarian students in the groups under study differ. The corresponding selective value for the criterion is (K; E2)=-4,444(Annex H). The level of self-organization, self-regulation and strong-willed characteristics of the future agrarian in the organization and implementation of self-development as a person and professional, formed competencies to manage this process, to control it; developed ability to self-development without external influence; self-control of activity; the presence of the ability to adjust their own actions based on the results of self-development determines the regulatory and self-organization criterion. Based on the analysis of testing in order to assess the formulation of emotional and strong-willed regulation of the process of self-development of the future agrarian and methods of study of the level of subjective control (D. Rotter), the corresponding formulation presented in the table were determined.

Таблиця 5.8.

Dynamics of changes in indicators of regulatory and self-organization criterion of professional-personal self-development of students-agrarians at the end of the forming experiment

Рівні сформованості показників	**Розподіл за рівнями сформованості у %**					
	Контрольна група			Експериментальна група		
	Констатувальний етап	Контрольний етап	Відхилення	Констатувальний етап	Контрольний етап	Відхилення
середні значення сформованості компонента						
низький	38	36	-2	37	18	-19
середній	51	54	-3	50	41	-9

вис окий	11	10	-1	13	41	+28

Джерело: сформовано авторами на основі анкетування

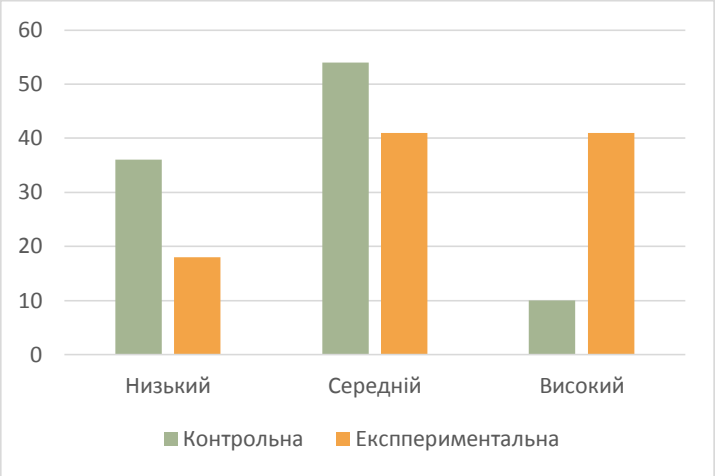

Рис. 5.17. Distribution by levels of forming indicators of regulatory and self-organization criterion of professional-personal self-development of agrarian students at the control stage

As can be seen from table 8, the distribution by the levels of the forming of indicators of the regulatory and self-organization criterion at the initial stage in both groups is approximately the same. At the control stage of the experiment, low-level indicators remained in the control group (38% and 36%) and decreased by 19% in the experimental (Fig. 18). This indicates that the number of students-farmers unsure of their own abilities and capabilities, with a low degree of desire to achieve the planned results,.inclined to attribute more importance to external circumstances - management, colleagues, luck, in the control group decreased.

On the average degree of self-organization competencies on the basis of self-regulation of activities under tragic conditions, about half of the students-agrarians remain. While in the experimental group 9% of agrarian students of this category switched to a high degree of self-organization competencies on the basis of self-regulation of activities. In general, in the experimental group, 41% of agrarian students showed the presence of a desire to achieve their goal and fulfill the tasks of professional and personal self-development, confident solution of existing tasks in various

ways, awareness of the personal meaning of self-development, positive attitude to the process of self-development. Students of this category consider their professional and personal self-development an important factor in organizing their own professional activities, career advancement, relationships with colleagues.

Statistical processing indicates that the indicators of regulatory and self-organization criterion of professional-personal self-development of agrarian students in the groups under study differ. The corresponding selective value for the criterion is (K; E2)=-5,656 9 (Appendix P). At last, we determined the degree of influence of each indicator of professional-personal self-development of the future agrarian on his qualifications. On the basis of the profession of the future agrarian – a document in which the full qualification characteristic of the agrarian is given from the point of view of the requirements for his competencies, knowledge, skills, his personality, abilities, psychophysiological capabilities and level of training, personal and business qualities, motivational sphere, value orientations aimed at the progressive development of a specialist, we have determined the integral indicators.

In this case, we took into account that the leading subjective qualities of the individual as a whole, as well as professionally important qualities of a person as a specialist are formed in the process of acquiring vocational education, are fixed, developed, improved, improved directly in the process of professional activity and solving specific professional tasks, are updated in the process of professional development and development as a subject of professional activity. "A professional is a professional activity that has high indicators of professionalism of personality and activity, high professional and social status, dynamically developing system of personal and active regulatory regulation, constantly aimed at self-development and self-improvement, personal and professional achievements of social and positive importance" [47, p.184].

On the basis of the leading methodological principle – unity of personality and activity – a professional is understood as a system of two

important components: professionalism of the individual and professionalism of the activity: "Professionalism of the individual is a qualitative characteristic of the subject of work, which reflects the high level of professionally important and personal and business qualities, acmeological invariants of professionalism, a high level of creativity, an adequate level of harassment, motivational sphere and value orientation, for the progressive development of a specialist" [47, p.174]. In the process of professionalization of specialists, it is significant, in our opinion, that the object of development is, according to the subject-activity approach, the subject of activity is a specialist who, depending on the success of the activity, undergoes four stages of professionalization – professionalization, primary and secondary professionalization, skill.

The main indicators of professionalism of a specialist that allow him to work successfully are, in our opinion: professional competence as a representative of a particular type of professional activity; professional competence as a representative of a particular profession, that is, specialization in a particular profession; development of subjective and professionally important qualities and traits as a specialist in a particular type of activity; clear awareness of the hierarchy of professional activities goals and their purposeful conscious implementation; possession of modern professional technologies, methods and means of realization of official competencies as a subject of professional activity; low level of dependence in the process of realization of official competencies on external factors and circumstances; success, productivity and efficiency of professional activity.

Therefore, the professional development system should be indicative of these indicators of professionalism of a specialist and their purposeful development. In particular, according to the following tasks: expansion, enrichment and constant filling of the new content of the professional and professional orientation of the individual; enrichment of professional and professional experience; development of complex special abilities and cognitive processes that are necessary for the successful implementation of

official competencies; constant development of personal, professional and psychological readiness of a specialist for targeted professional activity in the modern labor market.

These changes relate to both the personal and professional spheres of a specialist. In this regard, we emphasize the subject-professional development of a specialist who represents the process of personality development in a professional environment, which is focused on the full actualization of its spiritual, cognitive, professional and professional types of potential as a specific specialist in professional activities and on achieving significant results in it.

So, we consider the professional development of a specialist's personality as: the purpose, meaning and value of his professional culture as a person and specialist; complex, contradictory and multifaceted process, which consists of personal, professional and professional development, deterministic, as a rule, social, professional and technological, age, personal, leading individual-psychic, professionally important and professional qualities and traits, has an open, uneven and hetero-ochron nature; the result of a constant search for an answer regarding the essence of contradictions (external and intra-personal), which constantly arise in professional activity, and the expert's attempts to solve them; a prerequisite for successful professional activity of a specialist; a prerequisite for personal and professional self-actualization of a specialist in professional and professional activities is necessary. Like the previous ones, we translated qualitative indicators into quantitative on a 6-point scale.

To find the parameters of paired linear regression, we used the built-in function line(x,y) in the Mathcad environment. For motivational-value criterion, the model you are looking for is: (Appendix P). Numerical characteristics (average values − 3,828 and 3,81, average quadratic deviation − 1,126 and 1.1), correlation coefficients – 0,951 and kovaryation 1,157 indicate a close relationship of motivation and values to self-development with the qualification of the future agrarian. If

motivational and value indicators increase by 1, then the qualification of the future agrarian increases by 0.951 units. Similarly, we investigated the relationship between other criteria. Linear models peddle as follows:

So if the estimated targets increase by 1, then the qualification of the future agrarian increases by 0, 729 units, if the performance and technological indicators increase by 1, the qualification of the future agrarian increases by 0.823 units, if the valuation and analytical indicators increase by 1, then the qualification of the future agrarian increases by 0.459 units, if the regulatory and self-organization indicators increase by 1, then the qualification of the future agrarian increases by 0.459 units, if the regulatory and self-organization indicators increase by 1, then the qualification of the future agrarian increases by 0.459 units. 0,529 units. We state the significant impact of all indicators of professional and personal self-development of the future agrarian on his qualifications. But first of all, it concerns motivational-value, tentative-target and effective-technological.

In order to test the hypothesis of experimental work on the basis of comparison of data of the stated and forming experiments relating to the qualitative parameters of professional and personal self-development of future specialists of agrarian profile and its role in the implementation of the main professional activity, the final stage of the forming experiment took place. After that, based on the data obtained during the study, the students of control and experimental groups were re-interviewed according to the same criteria (Tables 5.9., 5.10).

The obtained data indicate that there were no significant changes in the assessment of indicators of professional and personal self-development of future specialists of agrarian profile in control groups after the completion of experimental work. They are close to the priorities of the defined future agrarian, we are at the stated stage. In addition, some indicators are clearly illogical, which indicates the frivolous attitude of the respondents to the process of self-determination regarding the proposed problem. For example, there is a significant decrease in interest in the

problem of self-development, although there is no reason for this. When conducting classes in control groups in traditional conditions and according to standard programs, the problems of professional and personal self-development of future specialists of the agrarian profile (both theoretically and practically) were paid much less attention. This is due to the fact that the majority of respondents did not give the process of research proper attention.

As for the data obtained during the survey of agrarian students - former participants of experimental groups, value-reflexive priorities in assessing the indicators of professional and personal self-development of future specialists have suffered significant changes. The most white increased increase in thought about the creative approach to learning, effective whole laying, the desire to master best practices, the ability to self-development, the ability to organize group cognitive activity.

Таблиця 5.10

Value-reflexive priorities in assessing the indicators of professional and personal self-development of future specialists of agrarian profile (P) and future agrarian of the experimental group (E)

	Назва показника	Рівні значущості (%)							
		низький		критичний		середній		високий	
		Р		К		К		І	
	Міцні теоретичні знання	-		14		60	6	26	7
	Висока методична підготовка	8		30	5	42	8	20	4
	Творчий підхід до	1		46		3		1	

	навчання	1			9	3	4	0	4
	Здатність до саморозвитку	7		53	5	13	2	7	2
	Уміння організувати групову пізнавальну діяльність	46		24	9	22	5	8	1
	Рефлексивна компетентність	36	2	45	3	15	5	4	0
	Дослідницький стиль діяльності	34	7	36	9	27	5	3	9
	Висока адаптивність та стресостійкість	32	2	37	1	30	5	1	2
	Ефективне цілепокладання	35	4	21	3	30	0	4	3
0	Націленість на успіх	11		18		43	1	8	5
1	Ініціатива та активність в інноваційній діяльності	39	1	28	5	22	1	1	3
2	Особистісно-орієнтований підхід до навчання	8		17	5	32	6	3	5
3	Прагнення до оволодіння передовим досвідом	3		8		56	6	3	7

Джерело: сформовано авторами на основі анкетування

Since the training was carried out in approximately the same conditions, with the exception of the above innovations (the introduction of the technology of professional and personal self-development of future

specialists of the agrarian profile on the basis of a justified model), the difference in performance indicators is explained by these changes. That is, the studied indicators have significantly improved with the introduction of these changes, namely for the introduction of the developed method of forming professionally personal self-development of the future agrarian, the peculiarity of which is the focus on the use of information technologies, the creation of an individual trajectory of formation of readiness for professionally personal self-development; use of analytical activity to form professionally personal self-development of the future agrarian.

At the same time, the following pedagogical conditions were fulfilled: stimulation of motivation for professional personal self-development; ensuring the focus of the educational process on the formation of readiness for professional personal self-development; use of information technology resource to form the readiness of future specialists for professional personal self-development. Therefore, the results of the control experiment confirm that the technology offered by us is effective. That is, the hypothesis, put forward theoretically, was confirmed on the basis of empirical measurements.

CONCLUSIONS

The modern system of agrarian education requires rethinking approaches to the training of competitive specialists who are able to solve problems in the current innovative conditions of agricultural production. An important place in the formation of a specialist is the formation and maximum realization of professional and personal potential. Due to the digitalization of the agricultural sector, such qualities of future specialists as analytical skills and information competence. In conditions of complexity, dynamism and unpredictability of professional problems, creativity, ability to work in a team, leadership qualities remain in demand. The study, conducted as part of a stated experiment, confirmed that ensuring professional and personal self-development of the future agrarian requires an appropriate theorical and methodological justification.

Theorist and methodological analysis of the problem under study allowed to determine the pedagogical conditions that contribute to the optimization of professional and personal self-development of future specialists of the agrarian profile at the stage of studying at higher education institutions: stimulation of motivation for professional and personal self-development; ensuring the focus of the educational process on the formation of readiness for professional personal self-development; use of information technology resource to form the readiness of future specialists for professional personal self-development.

Practical verification of the effectiveness of the model and technology of professional and personal self-development of future specialists of the agrarian profile of rea-was carried out in the process of training applicants for higher education in educational programs: "Agronomy", "Horticulture and Viticulture", "Forestry", "Garden and Park Economy", "Protection and quarantine of plants", "Ecology", "Agroengineering", "Electric power engineering," The peculiarity of training was the focus on the use of information technologies, the creation of an individual trajectory of the formation of readiness for professionally personal self-development; use of analytical activity to form professionally personal self-development of the

future agrarian.

According to the criteria developed by us (motivational-value; tentative-target; effective-technological; evaluation and analytical; regulatory and self-organization), the results of the examination confirmed the theoretical analysis that due to the introduction of the new methodology, the number of students-agrarians of professional and personal self-development of which is carried out at the highest levels has increased. Correlation and regression analysis of the obtained results, carried out in mathcad environment, revealed a significant positive impact of all indicators of professional-personal self-development of the future agrarian on his qualifications. The linear pair model confirms that first of all it concerns motivational-value, tentative-target and effective-technological indicators.

In the experimental group, the ranks of values directly related to the future professional activity of students have changed: the level of significance of such values as "interesting work", "the beauty of nature and profession", "productive life (the fullest use of their capabilities, strengths and abilities)" has increased as much as possible.

In general, experimental testing showed the effectiveness of the technology of professional and personal self-development of the future agrarian.

GENERAL CONCLUSIONS

During the research and experimental work, a theoretical generalization was carried out and a new approach was justified to solve the problem of forming the readiness of future teachers of higher education for professional personal self-development. The results of the survey showed the achievement of the goal, the solution of the tasks and the legitimacy of the study, which makes it possible to draw the following conclusions:

1. As the analysis of psychological and pedagogical sources on the formation of professionally personal self-development of future teachers showed, the problematic aspects are: the lack of a scientifically justified system of formation of readiness for professionally personal self-development of future teachers during studying at universities (and in particular non-pedagogical profile); lack of holistic methods for forming readiness for professional personal self-development; poor awareness of teachers of higher education institutions with this problem and ways to solve it.

2. The essence of the concept of "professional-personal self-development of the future teacher" as an integrative quality consisting of motivational-value, cognitive-creative, effective-evaluation components, which is purposefully formed in the educational process of the university and manifested through: value attitude to professional personal self-development, has been clarified; behavioral models aimed at professional and personal self-development, professional and socially significant qualities; ability to build productive social relations, which allows the future teacher to act as competitive subjects of social and practical activities. The content of each component is characterized.

3. The expediency of solving the problem of professionally personal self-development in the context of methodological approaches (personal oriented, acceological, axiological, activity, sociocultural) and principles (systematic, consistency, scientific, professional orientation, collective interaction, individualization) was clarified..

4. Theoretically substantiated and developed structural and functional model of formation of readiness of professionally personal self-development of students in

higher education institutions, which contains the following components: target (purpose and objectives); methodological and methodological (methodological approaches and principles of formation of professionally personal self-development of the future teacher); information and activities (content, methods, forms, means); diagnostic (criteria, indicators, levels of professional personal self-development); effective (focus of the model on the positive dynamics of the formation of professionally personal self-development of the future teacher).

Pedagogical conditions (stimulation of motivation for professional personal self-development, ensuring the orientation of the educational process to form readiness for professionally personal self-development; use of information technology resource to form the readiness of future specialists for professionally personal self-development) provide unity and logic for the deployment of the process of formation of professionally personal self-development of the future teacher.

5. The methodology of formation of professionally personal self-development of the future teacher was developed and tested, the peculiarity of which is the focus on the use of information technologies, the creation of an individual trajectory for the formation of readiness for professionally personal self-development; use of analytical activity to form professionally personal self-development of the future teacher.

6. Experimental testing was carried out and the effectiveness of the author's model and methods of forming professionally personal self-development of the future teacher was determined. Experimental testing was carried out and the effectiveness of the author's model and methods of forming professionally personal self-development of the future teacher was determined.

The analysis of the results of the forming experiment proved the pedagogical expediency and effectiveness of the developed model and methodology for forming readiness for professionally personal self-development of the future teacher.

The conducted study does not exhaust all aspects of solving the problem of forming professionally personal self-development of the future teacher. Prospects for further research related to conceptual analysis, conditions for the formation of professionally personal self-development of the future teacher during the conduct of

practices, preparation of teachers of higher education institutions for the formation of professionally personal self-development of the future teacher.

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ДОДАТОК А

Scenario of working on the case in the study of the discipline "Methods of teaching in high school"

Topic: Questions for updating knowledge to work with cases:

What challenges do modern teachers face in the process of professional activity? What socio-economic processes are they caused? Who is the tutor? What is a "facilitating" learning style? What is the peculiarity of the concept of "coaching"? How does the pedagogical influence of the mentor differ from the influence of the edsizer? The role of the individual of the teacher in the educational process. Describe the professionally significant personal qualities of the teacher, based on the results of researches of modern scientists. What is a teacher's profession, what functions does it perform? Give a characteristic of the component composition of the professional competence of the teacher. Three ways of professional development of the teacher. Which one would you choose for yourself, why?

Cases to the section:

Кейс 1.

Read the article by Jan Friedmann, Hauke Goos, Lena Greiner of the German edition of Spiegel Online "Welche Eigenschaften muss ein guter Lehrer haben?" (What qualities should a good teacher possess).

Everyone had bad teachers. In the series "How are our schools improving?" students, teachers, education experts and policy experts discuss this question: What has made good teachers good? Those who like their teachers, look forward to lessons, often find the material interesting, and make more effort than in other subjects: popular teachers often know how to motivate their students. But if you remember the school years, you also know that being enjoyable is not enough. Teachers who are lovingly remembered were often quite stubborn, rude and clumsy.

A survey of prospective high school graduates found, however, that students with low self-esteem can often seriously imagine a teacher:Only 13 percent of those

students who aspire to become a teacher say they can make a good statement about themselves. And just under 16 percent say they have a high level of self-confidence. Only one in four future teachers believe that they know how to motivate others.

Stable personality, pedagogical skills, sufficient knowledge of specialists - what mixture of these ingredients makes a good teacher? And: Can I learn this? Read the answers of ministers of education, scientists, teachers and students to the question: What qualities should a good teacher possess?

Josef Kraus, President of the German Association of Teachers: "The teacher must be a master of his subjects and love them. It infects students. He should love young people without wanting to be their mates. It has to be fair. He shouldn't let himself dance on the nose" ... And he needs a solid nervous suit."

Mona Steininger, winner of the SPIEGEL school newspaper competition: "There is nothing worse than a teacher who has very little technical competence. As soon as the students notice that their teacher does not know what he is talking about, they become restless and respect him less. It is always good to remember that there is a person in front of you who also has a bad day or is joking.

Brunhild Kurt (CDU), Saxony's culture minister: "Teachers should love children and young people and enjoy working with young people. This is almost more important than excellent knowledge of specialists."

Michael Winterhoff, author, child and youth psychiatrist: "Teachers must have a strong personality to offer support and orientation to children. And they should have extensive pedagogical and psychological knowledge of development, as well as a desire to convey to children the values and content of learning - and consider this as their task to unite students to promote wide psychological development so that they can later master their lives. Teachers should also be able to tolerate making themselves unpopular".

Sandra Sheres (SPD), Senator of Berlin School: "The teacher's objectives are defined in paragraph 67 of the School Act: " The teacher teaches, educates, evaluates and evaluates, advises and controls his pedagogical responsibility within the

framework of educational purposes and other legal and administrative norms, as well as the resolutions of school authorities." teachers need social and intercultural skills, as well as a high degree of flexibility. Their commitment, perseverance and passion are essential to a sustainable society."

Marlis Tepe, chairman of the Education and Science Union: "First of all, teachers should love children and young people - and themselves too. Self-confidence, interest in other people, affinity and empathy are the basic requirements. Pedagogical and technical knowledge should be acquired during training and develop further in theory and practiced throughout the career.

Jörg Dreger, board member of the Bertelsmann Foundation: "A good school is good learning. And good teachers do it. A good teacher builds positive professional relationships with his students, has confidence in their potential and makes high demands on them. He encourages students individually and knows how he will bypass himself." should have the ability to check again and again whether what he wants to convey comes to the students, as well as the ability to work with colleagues on the further development of lessons and receive feedback from the audience, which makes a good teacher. "

Sylvia Lormann (Greens), Minister for Schools in North Rhine-Westphaliia: A good teacher is able to professionally adapt to a variety of student groups. He or she should take responsibility for students and be able to work in multi-professional teams".

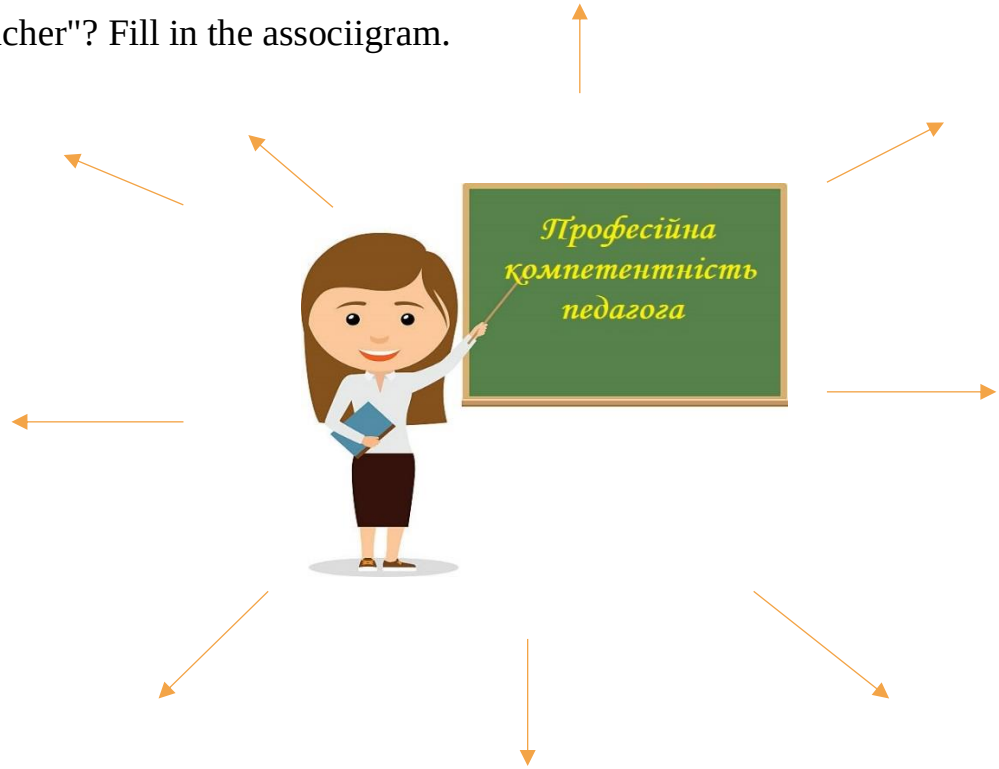
Kerstin Glein, Friedrich-Ebert Hamburg Gymnasium, teacher at the 2013 Klaus von Klitsing Prize: "First of all, teachers should have a very positive attitude towards their profession and their students. A good teacher treats his students with respect, takes their needs and problems seriously and creates the necessary trust. And it sets rules of conduct for students, sets limits, respects compliance and is predictable."

Give your own assessment of the interview? Were you interested in getting acquainted with the opinion of professionals? Whose views impress the most? Take an online questionnaire on the official page of SPIEGEL ONLINE athttp://www.spiegel.de/lebenundlernen/schule/lehrer-welche-eigenschaften-braucht-

ein-guter-paedagoge-a-995973.html. Did your opinion coincide with the views of the majority? Conduct your own survey of competent specialists /students/ and draw up results in the form of a multimedia presentation.

Кейс 2

1. Having worked out the topic "Professional competence and competitiveness of the future specialist", you are already familiar with the concept of competence. What associations do you have the concept of "professional competence of the teacher"? Fill in the associigram.



Translate into English and create a glossary on the topic "Competence and professionalism of the teacher" by example: Self-understanding means the representation, perception and evaluation of the subject himself and his actions; Having trouble? Use online dictionarieshttp://www.duden.de, http://www.wortbedeutung.info

Get acquainted with the information about the competence and tasks of the teacher in Germany (Source: Wubel.de). Do key competencies and requirements for a teacher differ in the countries of the European Union and Ukraine?

Tasks and competencies of the teacher. Here you can find out what skills you need as a teacher. Of course, this is closely related to the roles that the teacher must perform. Think about the skills you already have, what you need to develop and work on them while studying. Being a teacher is much more than teaching, preparing and following a lesson. You have a lot of different tasks in front of you. Kultusministerkonferenz (www.kmk.org) has divided these tasks into areas of competence with the help of "Standards for preparing teachers for educational sciences". This is as follows: Teaching

Competence 1: Teachers professionally and properly plan training sessions and conduct them objectively and professionally. Competence 2: Educators support student learning by creating learning situations. They motivate students and enable them to make connections and use what they have learned. Competence 3: Teachers contribute to the development of students' ability to study and work independently.

Educate Competence 4: Teachers know the social and cultural living conditions of students and influence their individual development within the university. Competence 5: Teachers convey values and norms and support self-defined judgments and actions of students. Competence 6: Teachers find ways to solve difficulties and conflicts at the university. Competence 7: teachers diagnose students' learning requirements; they provide targeted support to students and counsel students and their parents. Competence 8: teachers record students' performance based on transparent evaluation criteria.

Innovation Competence 9: teachers are aware of the special requirements of the pedagogical profession. They understand their profession as a public position with special responsibility and duty. Competence 10: teachers consider their work as a permanent educational task. Competence 11: teachers participate in the planning and implementation of university projects and plans. Source and additional information: Conference of Ministers of Education

The competencies formulated by the CMC usually involve certain tasks and actions that you must perform as a teacher. You do not need to have the same benefits for all activities. However, if you completely reject the scope of competence or

consider it not important, you should conscientiously and self-critically question your choice of profession.

Solving bureaucratic problems that are part of the teacher's profession requires a certain discipline and experience, and sometimes can be stressful. This includes, among other things, the creation and management of student observations, the creation of certificates (author's courses) and the planning of classes. Regular conversations with parents or discussions with consultants or auxiliary institutions, as well as representatives of the authorities, are also part of the teacher's daily work and require targeted training and training.

.. In other words... You must have the following competencies, i.e. knowledge, skills and abilities: Professional competence Methodological competence Pedagogical competence Self-competence Language competence Social competence

The first three areas can be constantly improved during training and during the performance of their profession. Other competencies are closely related to personality and are therefore subject to change only limited in adulthood. Consider the associate "10 main competencies of a modern teacher" and reveal the value of each competence. It also serves as information from p.2, the scientific report of the German researcher Edwin Stiller "Become a teacher -stay a student: competences, standards and professional biography-will -learn -stay.pdf, materials of the author's blog Necheporenko M.M. "Teacher professional and comprehensively developed personality" https://mariagordiichuk.blogspot.com. Draw up the results of the work in the form of reports. Use artwork by translating text.

Кейс 3

Get acquainted with the modern Mindmap technology and its functionality within the educational process and group work. (Information on the materials of the site https://www.goconqr.com)

In recent years, the use of mental maps in groups has increased tremendously thanks to the advantages of mind mapping and the growing number of free online

mind mapping tools. Educators recognized the value of mind maps and know how to use them to encourage the creativity of students. More importantly, they can be used to teach learning. Mind maps have been integrated into a significant number of teaching methods, such as "head-to-head teaching" or "thinking design". How can teachers get the most out of mind maps? Here are some ideas for how teachers and students can use mind mapping in a group and outside classroom time. Translate artwork yourself

Mind mapping strategies for teachers. Before class: Planning: Whether it's a schedule, a year's curriculum, or a task allocation: Mind maps give you a clear and visual overview of what you need to do. Organization: If you regularly record thoughts as markers, then mind mapping is the perfect tool for you. Structures can be quickly created and classified by subject areas.

During classes: Learning: Online mind maps can be used in a brainstorming session and stimulating discussion by encouraging students to participate. At the same time, it helps to understand the topic, as the links between different aspects become clearer and the "overall picture" can be better understood. Handout: Mind maps created on the Internet can be quickly and easily printed to then share them with students. They can then take turns adding their own notes.

Presentations: An effective way to improve students' communication skills is through presentations. With the help of mind maps, information can be transmitted visually, and therefore expand the attention area. With our free mind mapping tool, you can quickly and easily create interactive mind maps for your online presentation.

Creativity: In fact, the mind map is nothing more than a blank canvas. Why not just increase the fun factor during class, of course, briefly? Unleash your creativity, give students a "stupid" goal, and ask how to achieve it. This activity will stimulate not only creative thinking, but also independent thinking. In addition, students will have a lot of fun! A small violation of the traditional form of behavior under the supervision of a teacher is quite permissible. Learning: The reflection of the mind is seen as a learning tool that helps students consolidate knowledge by creating connections between different areas. This allows you to study the topic more deeply without ignoring the appropriate context or not noticing them.

Beyond the audience: Collaboration: A new generation of "digital residents" is very flexible when it comes to change and expects technology to be used in education. Students can easily collaborate on group work or tasks through free online learning platforms such as ExamTime, for example by sharing and collaborating on mind maps. Assessment: The great use of mind mapping is to ask students before and after a particular class to write down their knowledge of the topic as a mind map. Thus, the information not only remains the best in your head, but also as a teacher you can also make sure that additional knowledge has been transferred and stored.

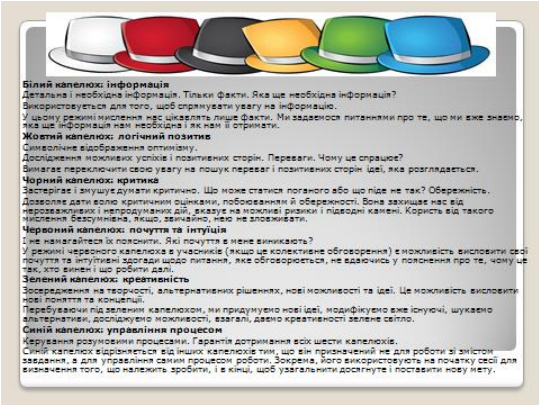
Comprehension: Reading through learning material is important. Encourage students to create a mental map from their own records and see how much they can get into it. The mind map can be divided into several ideas, and further maps of the mind can be created from nodes. Organize a round table devoted to the personality and professionalism of a modern teacher. You have ready to report "10 Kernkompetenzen des modernen Lehrers" (case 2, r. 2) and presentations devoted to the personal qualities of the teacher (case 1, p.2), you have data on the teacher's profession, the challenges of our time affecting pedagogical activities , (p.2), we propose to discuss the issues worked out, discuss and create a collective "Das Bild

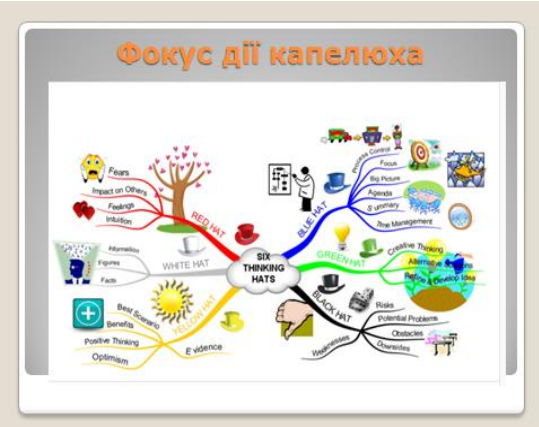
des idealen Lehrer des XXI Jahrhunderts" (Portrait of the ideal teacher of the XXI century) and draw up the results in the form of an intellectual Mind Map.

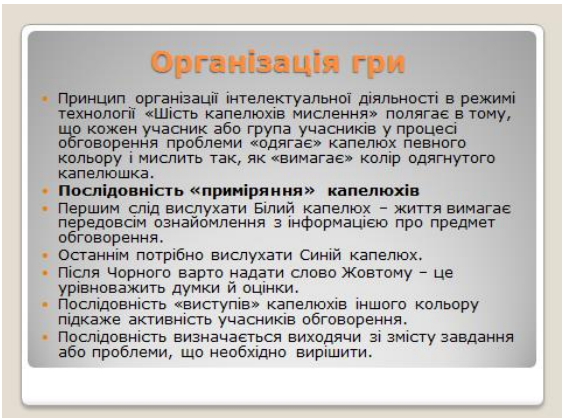
Useful services for creating smart maps:Coggle, MindMapple, NovaMind, Sketchboard.

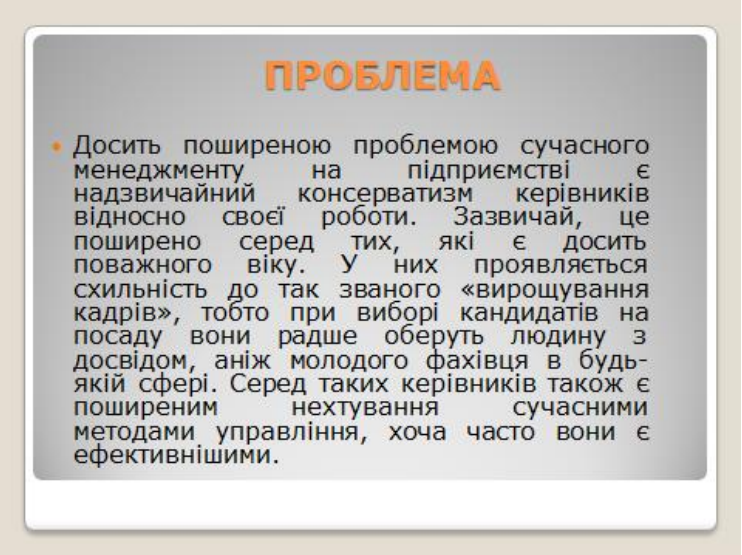
ДОДАТОК Б

Presentations to the role-playing game using the "Six Thinking Hats" method









ДОДАТОК В

Assessment of the implementation of the future agrarian's needs for self-realization

Respondents assessed the degree of development of the following indicators:

- I seek to study myself; I leave time for development, no matter how busy; - Obstacles that arise stimulate my activity; - I am looking for feedback because it allows you to evaluate yourself; I reflex my activities; I analyze my feelings and experiences; I read a lot; I debate extensively on issues of interest to me; I believe in my capabilities; I strive to be more open; I am aware of the impact that the environment has on me; - I manage my professional development and get positive results; - I enjoy the new; The growing responsibility does not lie to me; I would be positive about my career.

Evaluation of results: For the answer "yes" - 5 points; For the answer "rather yes" - 4 points; For the answer "I do not know" - 3 points; For the answer "rather not" - 2 points; For the answer "no" - 1 point.

The amount of points shows: 55 points or more – active implementation of the development need; 36-54 points – no development system; 15-35 points – development stopped.

ДОДАТОК Д

Self-development readiness test (V. Pavlov)

Description: The test contributes to determining the readiness for self-development: the willingness to change, to know yourself affects the formation and development of personal qualities and personality in general. Instruction: "Evaluate how correct the approvals are for you are listed below. If they are faithful, put a "+" in front of the number; if incorrect, then write the sign "-". If you do not know how to answer, put a sign "?". The last answer is allowed only in extreme cases."

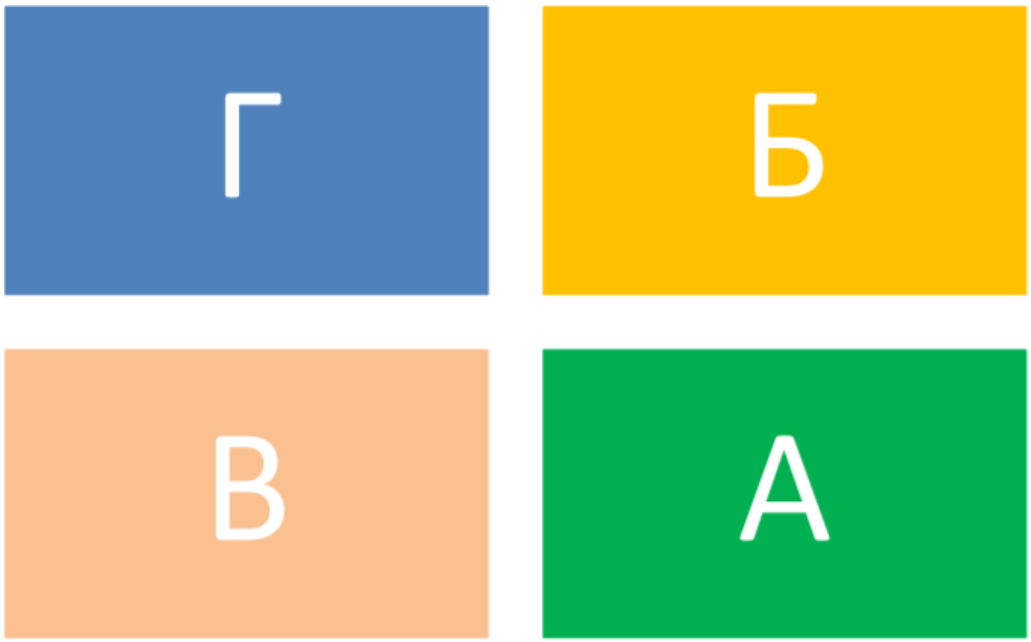
The text of the questionnaire: 1. I often have a desire to learn more about myself. 2. I believe that I do not need to change anything. 3. I am confident (a) in my abilities. 4. I believe that everything I conceived to come to realize. 5. I have no desire to know my disadvantages and pros. 6.In my plans, it is more likely to hope for luck than for myself. 7. I want to work better and more efficiently. 8. I know how to force and change myself when I need to. 9. My failures are many related to the ineavence to do so. 10. I am interested in the opinion of others about my qualities and capabilities. 11. It is difficult for me to achieve my own conceived and educate myself. 12. In any case, I am not afraid of failures and errors. 13. My qualities and skills meet the requirements of my profession. 14. Circumstances are stronger than me, even if I really want to do something.

Processing: Key value for each claim: «+» - 1, 3, 4, 7, 8, 9, 10, 12.

«-» - 2, 5, 6, 11, 13, 14.

Count the number of key matches. The value of readiness "want to know yourself" - to calculate the number of matches with the numbers 1,2, 5, 7, 9,10, 13. The maximum value of readiness to know yourself (GOS) can be 7 points. That is, GOZ - "+" - 1, 7, 9, 10; «-» - 2, 5, 13. The value of readiness "can improve" - to calculate the number of matches according to the statements: 3, 4, 6, 8, 1,12, 14. Maximum 7 points. That is, GMS - "+"-3, 4, 8, 1, 12; «-»-6, 14.

The acquired knowledge is transferred to the graph: horizontally the value of the CCD is deposited, and vertically the GMS. On two coordinates you mark in the graph a point that falls into one of the squares: A, B, B, D.



ДОДАТОК Е

Questionnaire "My idea of a successful person"

1. How do you understand the expression "successful person"? 2. What does success mean for you personally? 3. Remember your personal successes. Name them. 4. Who among your acquaintances has significant successes? Why? 5. What was your last success? When did it happen? 6. What qualities is distinguished by a successful person, and what features characterize the nods? 7. Is there a difference between life and professional success? Justify your opinion. 8. What character traits do you have that contribute to success? 9. What prevents you from making thorough progress? 10. What goals have you set yourself for this month?

11. What goals have you set yourself this week? 12. What goals have you set yourself to date? 13. What goals have you achieved over the past year, last month,

last week, yesterday? 14. How can you reduce the influence from the outside on the implementation of your plans? 15. Do you help other people succeed? (Who exactly, how?

ДОДАТОК Ж

Test Questionnaire: Self-Esteem Study (A. Mahrabian)

Description: You can detect self-esteem using a test questionnaire. This questionnaire includes 32 judgments, on which five answers are possible, each of which is encoded by points according to the scheme: very often – 4 points, often – 3 points, sometimes – 2 points, rarely – 1 point, never – 0 points.

Text of judgment: 1. I want my friends to encourage me. 2. I constantly feel my responsibility in studying or at work. 3. I worry about my future. 4. Many hate me. 5. I am endowed with a smaller initiative than others. 6. I worry about my mental state. 7. I'm afraid to look like a fool, 8. The appearance of others is much better than mine. 9. I am afraid to make a report to strangers. 10. I often make mistakes. 11. How a pity that I do not know how to communicate with people. 12. How sorry that I lack self-confidence. 13. I would like my actions to be approved by others more often.

14. I'm too humble. 15. My life is selfless. 16. Most have a wrong opinion about me.17. I have no one to share my thoughts with. 18. People expect a lot from me. 19. People are not particularly interested in my achievements. 20. I am slightly ashamed. 21. I feel that many do not understand me. 22. I don't feel safe. 23. I am often worried and wasted. 24. I feel uncomfortable when I want to go to a room where people

already sit. 25. I feel constrained. 26. I feel that people are talking about me behind my back. 27. I am sure that people perceive everything more easily than I do.

28. I think there must be some trouble with me. 29. I am concerned about the thought of how people treat me. 30. How sorry I am not comradely. 31. In disputes, I speak only when I am confident in my rightness. 32. I think about what society expects of me. Processing: The amount of points from 0 to 25 indicates a high level of self-esteem, in which a person, as a rule, is not burdened with an inferiority complex, responds correctly to the comments of others and rarely doubts his actions.

The sum of points from 26 to 45 indicates an average level of self-esteem, in which a person rarely suffers from an "inferiority complex" and only occasionally tries to get under the opinion of others. The amount of points from 46 to 128 indicates a low level of self-esteem, in which a person painfully tolerates critical comments in his address, tries to always reckon with the opinion of others and often suffers from an "inferiority complex".

Checking the hypothesis about the uniformity of levels of professional and personal self-development of agrarian students in control and experimental groups (Mathcad listing)

Матриці даних в контрольній (К) та експериментальній (Е) групах

$$K := \begin{pmatrix} 2 & 2 & 3 & 4 & 4 & 4 & 12 & 5 & 5 & 5 & 5 & 6 & 6 & 6 & 6 & 6 & 6 & 6 & 6 & 7 & 7 & 7 & 7 & 7 & 7 & 7 & 7 & 8 & 8 & 8 \\ 8 & 8 & 8 & 8 & 8 & 8 & 8 & 8 & 9 & 9 & 9 & 9 & 9 & 9 & 9 & 9 & 9 & 9 & 9 & 9 & 9 & 9 & 11 & 11 & 11 & 11 & 11 & 11 & 12 & 12 & 12 \end{pmatrix}$$

$$E := \begin{pmatrix} 1 & 1 & 2 & 4 & 4 & 4 & 4 & 4 & 5 & 5 & 5 & 5 & 5 & 5 & 6 & 6 & 6 & 7 & 7 & 7 & 7 & 7 & 7 & 7 & 7 & 7 & 8 & 8 \\ 8 & 8 & 8 & 8 & 8 & 8 & 8 & 8 & 8 & 8 & 8 & 8 & 8 & 8 & 9 & 9 & 9 & 9 & 10 & 10 & 10 & 10 & 11 & 11 & 11 & 11 & 11 & 12 & 12 \end{pmatrix}$$

$N := 62 \qquad M := 58 \qquad \alpha := 0.1$

Середні значення показників

$Km := mean(K) \qquad Km = 7.71$

$Em := mean(E) \qquad Em = 7.328$

Середньоквадратичне відхилення

$Stdev(K) = 2.391$

$Stdev(E) = 2.516$

Квантиль розподілу Стьюдента

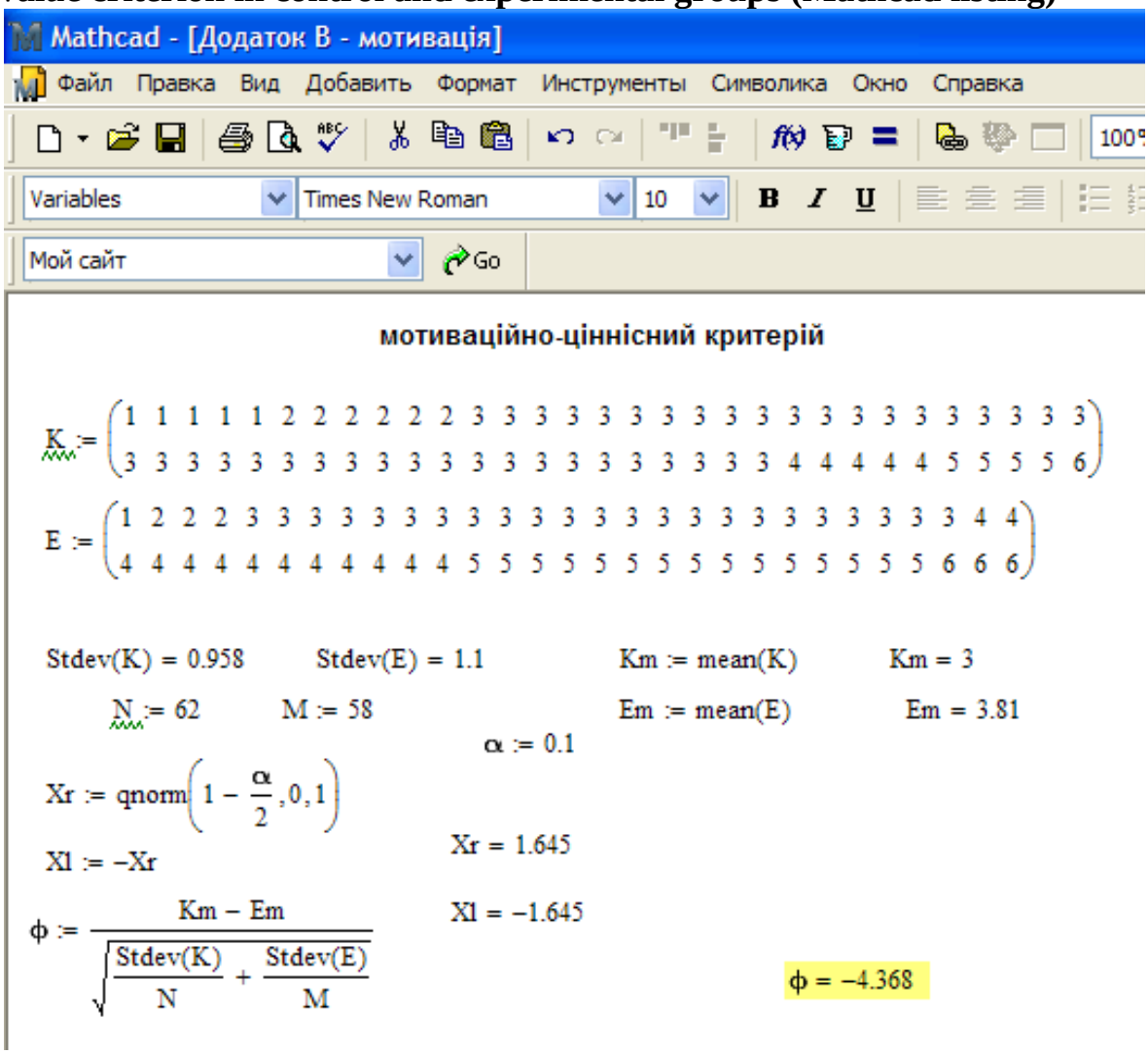
$$Xr := qnorm\left(1 - \frac{\alpha}{2}, 0, 1\right) \qquad Xr = 1.645$$

$$Xl := -Xr \qquad Xl = -1.645$$

Вибіркове значення

$$\phi := \frac{Km - Em}{\sqrt{\frac{Stdev(K)}{N} + \frac{Stdev(E)}{M}}} \qquad \phi = 1.335$$

Checking the hypothesis about the difference in indicators of motivational and value criterion in control and experimental groups (Mathcad listing)



Checking the hypothesis about the difference in indicators of the approximate-target criterion in the control and experimental groups (mathcad listing)

орієнтовно-цільовий критерій

$$K := \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 2 & 2 & 2 & 2 & 2 & 2 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 \\ 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 4 & 4 & 4 & 4 & 4 & 5 & 5 & 5 & 5 & 6 \end{pmatrix}$$

$$E := \begin{pmatrix} 2 & 2 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 4 & 4 & 4 & 4 & 4 & 4 & 4 & 4 & 4 & 4 & 4 & 4 & 4 & 4 & 5 \\ 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 6 & 6 & 6 & 6 & 6 & 6 & 6 & 6 & 6 & 6 & 6 & 6 & 6 & 6 \end{pmatrix}$$

Stdev(K) = 0.958 Stdev(E) = 1.157

$N := 62$ $M := 58$

$Km := mean(K)$ $Km = 3$ $\alpha := 0.1$

$E1m := mean(1)$ $Em = 3.81$

$$Xr := qnorm\left(1 - \frac{\alpha}{2}, 0, 1\right)$$

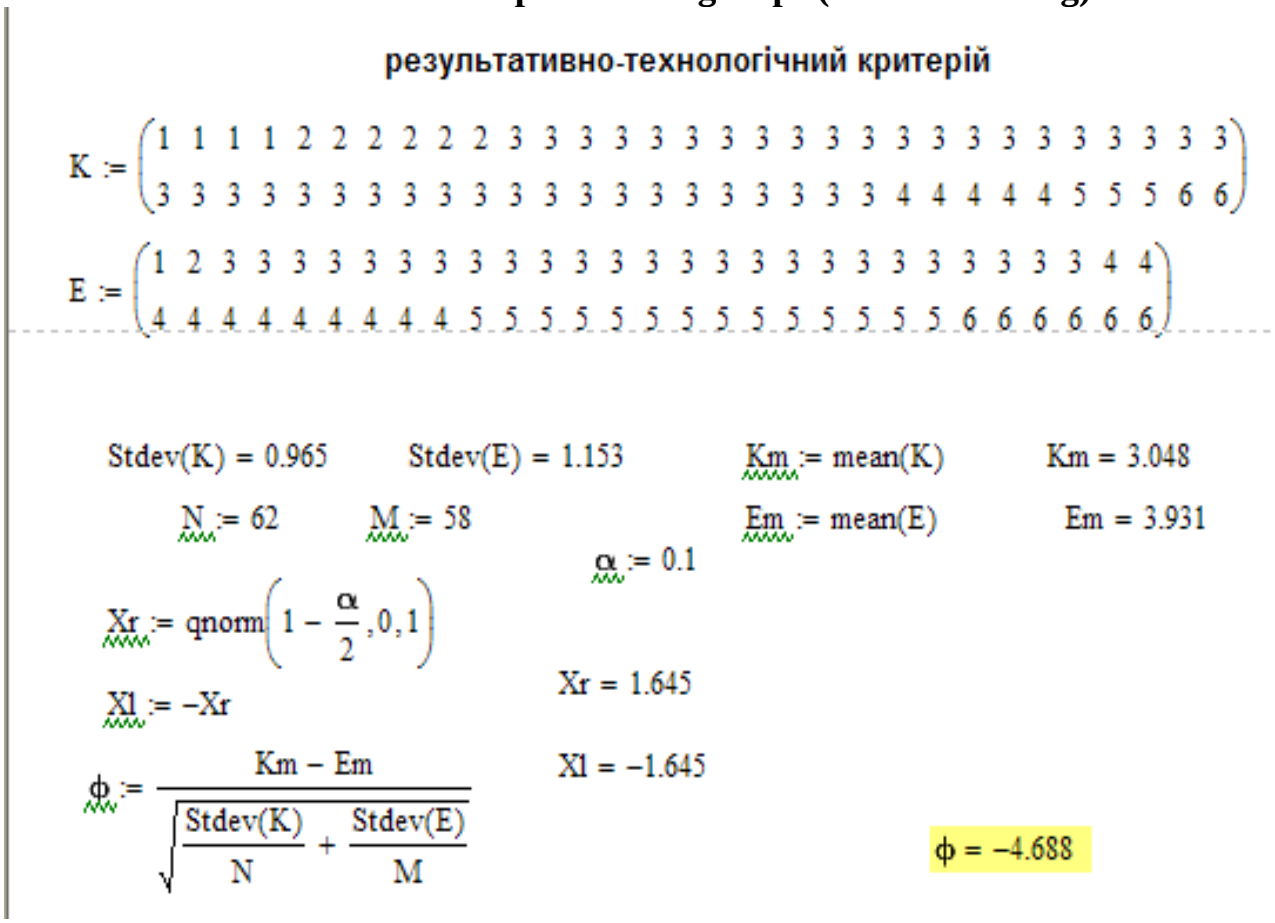
$Xl := -Xr$ $Xr = 1.645$

$Xl = -1.645$

$$\phi := \frac{Km - E1m}{\sqrt{\frac{Stdev(K)}{N} + \frac{Stdev(E)}{M}}}$$

$\phi = 10.629$

Checking the hypothesis about the difference in performance-technological criterion indicators in control and experimental groups (Mathcad listing)



Checking the hypothesis about the difference in indicators of valuation and analytical criterion in control and experimental groups (mathcad listing)

оціночно-аналітичний критерій

$$K := \begin{pmatrix} 1 & 1 & 1 & 1 & 2 & 2 & 2 & 2 & 2 & 2 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 \\ 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 4 & 4 & 4 & 4 & 4 & 5 & 5 & 5 & 6 & 6 \end{pmatrix}$$

$$E := \begin{pmatrix} 1 & 2 & 2 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 \\ 3 & 4 & 4 & 4 & 4 & 4 & 4 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 6 & 6 & 6 & 6 & 6 & 6 & 6 \end{pmatrix}$$

Stdev(K) = 0.965 Stdev(E) = 1.209 $Km := mean(K)$ Km = 3.048

$N := 62$ $M := 58$ $Em := mean(E)$ Em = 3.897

$\alpha := 0.1$

$$Xr := qnorm\left(1 - \frac{\alpha}{2}, 0, 1\right)$$

Xr = 1.645

$Xl := -Xr$

Xl = −1.645

$$\phi := \frac{Km - Em}{\sqrt{\frac{Stdev(K)}{N} + \frac{Stdev(E)}{M}}}$$

ϕ = −4.444

ДОДАТОК П

Checking the hypothesis about the difference in indicators of regulatory and self-organization criterion in control and experimental groups (Mathcad listing)

регулятивно-самоорганізаційний критерій

$$K := \begin{pmatrix} 1 & 1 & 1 & 1 & 2 & 2 & 2 & 2 & 2 & 2 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 \\ 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 4 & 4 & 4 & 4 & 4 & 4 & 4 & 5 & 5 & 5 & 6 & 6 \end{pmatrix}$$

$$E := \begin{pmatrix} 1 & 2 & 2 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 5 & 5 & 5 & 5 \\ 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 6 & 6 & 6 & 6 & 6 & 6 \end{pmatrix}$$

Stdev(K) = 0.98 Stdev(E) = 1.244 $Km := mean(K)$ Km = 3.081

$N := 62$ $M := 58$ $Em := mean(E)$ Em = 4.172

$\alpha := 0.1$

$Xr := qnorm\left(1 - \frac{\alpha}{2}, 0, 1\right)$ Xr = 1.645

$Xl := -Xr$ Xl = −1.645

$$\phi := \frac{Km - Em}{\sqrt{\frac{Stdev(K)}{N} + \frac{Stdev(E)}{M}}}$$

$\phi = -5.656$

ДОДАТОК Р

Determining the degree of influence of indicators of professional and personal self-development of the future agrarian on his qualifications (mathcad listing)

Інтегральні показники кваліфікації аграрія

N := (1 1 1 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 6 6)

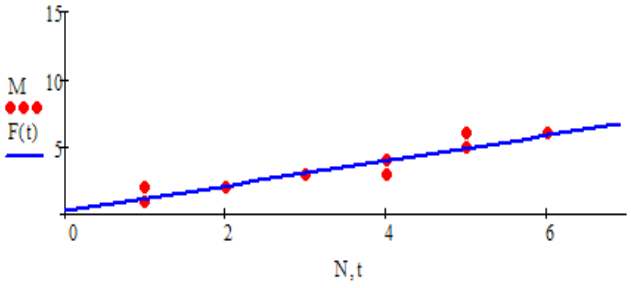
Показники мотиваційно-ціннісного критерію професійно-особистісного саморозвитку аграрія

M := (1 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 6 6 6)T

corr(N, M) = 0.951 mean(N) = 3.828 Var(N) = 1.268 Stdev(N) = 1.126

cvar(N, M) = 1.157 mean(M) = 3.81 Var(M) = 1.209 Stdev(M) = 1.1

$$line(N,M) = \begin{pmatrix} 0.257 \\ 0.928 \end{pmatrix} \qquad F(t) := line(N,M)_0 + line(N,M)_1 \cdot t \qquad t := 0, 0.3 .. 7$$



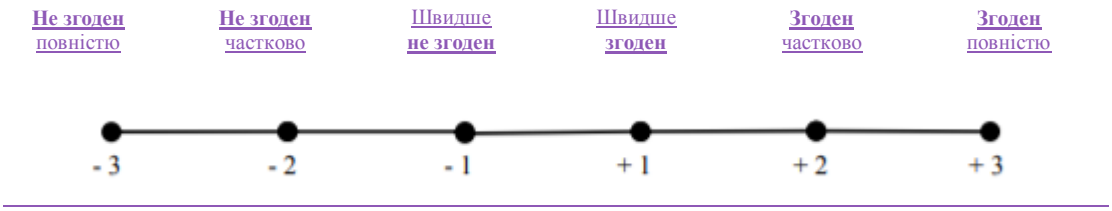
ДОДАТОК С

Questionnaire "Diagnostics of features of self-organization" (A.D. Ishkov)

Instruction. The questionnaire allows you to identify your individual features of self-organization. The accuracy of the results will depend on the degree of your frankness. The statements offered to you are not correct or incorrect, but only state certain differences in the activities of people.

Read each statement carefully and, assessing the degree of consent or disagreement with it on the six-point scale below. Enter the points received in a free cell to the right of the corresponding approval number on the "Response Form".

1. I have a clear idea of what I want to get from life



2. I try to get ahead of events mentally, predicting the possible consequences of my actions. 3. I systematically control the results of my activities. 4. I can act without review or even contrary to my instant emotional prompting. 5. I try not to participate in risky activities. 6. Setting a goal, I vividly, in all detail I imagine the result of its implementation. 7. If I do not have enough opportunities to achieve this goal, then first of all I direct my efforts to create these opportunities. 8. I successfully make situational desires that distract me from the goal. 9. I try not to change anything in my life without much need. 10. I approach the choice of my life goals consciously, without sparsing time

11. Setting a goal, I determine the deadlines for achieving it. 12. I make a weekly work plan using a weekly notebook, a special notebook, etc. 13. I track the degree of intermediate and deliverables matching previously scheduled results. 14. On the way to this goal, I easily mobilize my own forces to overcome obstacles. 15. I easily carry changes to the rules or conditions of life. 16. Having set a goal, I

determine a specific way of promoting it. 17. I regularly analyze my activities and its results. 18. I formulae for myself the goals that should be achieved in the near future. 19. I try to identify the main factors that allowed me to succeed to use them in the future.

20. I can influence my condition and activities by consciously changing my attitude to the situation. 21. I easily master in a new team. 22. I often have questions about the meaning of what I do. 23. At the end of the day, I analyze where and for what reasons I wasted time. 24. I solve problems sequentially, step by step. 25. I have such quality as perseverance. 26. I can easily adapt to the change of situation. 27. When deciding, I try to consider all possible options. 28. When planning my activities, I immediately set the criteria by which I will determine the degree of implementation of the plan. 29. I plan my work the next day.

30. I periodically evaluate my activities. 31. I am effortlessly subordinate to my actions by the decision I have taken. 32.I am embarrassed when I become the "center of attention". 33. Setting a goal, I determine whether I have all the necessary opportunities to achieve it. 34. I control all my actions. 35. Surprises knock me out of the "rut". 36. To fix errands, tasks and requests, I use a certain system. 37. Setting a long-term goal, I break it down into a number of intermediate ones. 38. I am looking for reasons for deviations of the results achieved from the previously planned ones. 39. Obstacles to the goal mobilize me by providing strength.

Questionnaire response form "Diagnosis of self-organization features"

Питаання	**Відповідь**	**Питаання**	**Відповідь**	**Питаання**	**Відповідь**	**Питаання**	**Відповідь**
1		11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	

7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30			

The key to the questionnaire "Diagnosis of features of self-organization"

1. Шкала «Цілепокладання» (14 питань):

$Ц / n = \frac{\sum_{Ц/n} +42}{0,84}$, де $\sum_{Ц/n}$ – amount of points for assessing statements №1+, 3+, 6+, 7+, 8+, 10+, 14+. 16+,

22+, 25+, 27+, 31+, 34+, 39+.

2. 2. Situation Analysis scale (14 questions):

$А / с = \frac{\sum_{А/с} +42}{0,84}$, де $\sum_{А/с}$ – сума балів оцінки тверджень №2+, 5+, 7+, 11+, 16+, 17+, 18+. 23+, 28+, 32+, 33+, 36+, 37+, 38+.

3. Шкала «Планування» (11 питанн):

$Пл = \frac{\sum_{Пл} +33}{0,66}$, де $\sum_{Пл}$ – сума балів оцінки тверджень №3+, 12+, 18+, 23+, 24+, 27+, 28+. 29+, 34+, 36+, 37+, 39+.

4. Шкала «Самоконтроль» (15 питань):

$С / к = \frac{\sum_{С/к} +45}{0,9}$, де $\sum_{Ск}$ – сума балів оцінки тверджень №2+, 3+, 13+, 16+, 17+, 18+, 19+. 23+, 28+, 30+, 31+, 33+, 34+, 36+, 38+.

5. Шкала «Корекція» (10 питань):

$Кор = \frac{\sum_{Кор} +30}{0,6}$, де $\sum_{Кор}$ – сума балів оцінки тверджень №5+, 9+, 14+, 15+, 21+, 25+, 26+. 27+, 32+, 35+.

6. 6. "Strong-willed efforts" scale (10 questions):

$Вз = \frac{\sum_{Вз} +30}{0,6}$, де $\sum_{Вз}$ – сума балів оцінки тверджень №4+, 6+, 7+, 8+, 14+, 18+, 20+. 27+, 31+, 39+.

7. Шкала «Рівень самоорганізації»:

$$РС = \frac{Ц / п + АС + Пл + С / к + Кор + Вз}{6}.$$

ДОДАТОК Ф

Завдання для проведення занять у формі дискусії

1.Прочитайте статтю;

2. Визначте основну проблему, яку розв'язує автор;

3. Які супутні проблеми розглядаються у статті?

4. Які шляхи пропонує автор для розв'язання проблеми?

5. Чи існують зазначені проблеми у нашій країні, університеті?

6. Які шляхи подолання даних проблем Ви можете запропонувати?

7. Знайдіть джерелами за даною тематикою.

Примітка: статті відібрано за посиланням: https://www.guninetwork.org/articles/education-pillar-2030-agenda-evolution-and-perspectives-context-covid-19-crisis

THE CHALLENGES OF HIGHER EDUCATION IN THE 21ST CENTURY

Granados, Jesús

About the author

Jesús Granados earned a bachelor's degree in Geography and a master's degree in Social Sciences Education from the Universitat Autònoma de Barcelona (UAB) as well as a master's degree in Environmental Education and Communication (ISEMA). He received his Ph.D. in Education from UAB.

After working at Universidad de la Rioja he accepted a position at the UAB in 2004 to teach and conduct research at the Faculty of Education, where he implemented several courses, among them the subject of Education for Sustainability which was open to all students at the UAB. Since May 2011 Jesús has been working at GUNI as studies, research and content coordinator.

Our imperfect world is advancing relentlessly towards uncertain future scenarios, and we must try to redirect it towards sustainability, that is, towards a new way of doing things in order to improve our environment while at the same time achieving justice, social equality and economic stability. However change is impossible without learning, just as learning is impossible without change. In the text that follows, I will analyze the need for a new form of education in today's society and identify the specific challenges that higher education faces.

Characteristics of our Current Society

We live in a world in crisis, in a knowledge society, and in an era in which time is fluid, nothing lasts, everything changes and is unstable.

The diverse and heterogeneous society of the new millennium is characterised by a series of internal crises in the welfare state: the social crisis, the environmental crisis and unsustainable practices, the crisis of states, the threat posed by globalisation, and finally, the crisis of democracy. The consequences of these crises include the exacerbation of social and economic inequality; the emergence of a global form of planetary management with new decision-making centres that have undermined the decision-making power of individuals and states; and citizens' loss of confidence in the democratic system due to the perception that political decisions are distant and difficult to influence.

When new forms of knowledge and symbolisation qualitatively impregnate all basic aspects of a society, or when a society's structures and processes for reproducing itself are so penetrated by knowledge-dependent operations that information creation operations, symbolic analysis and expert systems are more important than other factors of production, then we're talking about the knowledge society (Innerarity, 2010). The major challenge facing a knowledge society is the generation of collective intelligence: society's intelligence as a whole is more important than just having a society composed of multiple individual intelligences.

Bertman (1998) described life in today's society as a "nowist culture" and a "hurried culture", because we place more importance on brand-new, high-impact things than on those which require exploration. According to Bauman (2007), we have gone from linear time to pointillist time: what matters is the moment, and our identities are continually being built and modified.

The Need for a New Education

In the beginning, education and the ideals it embodied aspired to create a "perfect" citizenry. Later, the objective shifted to ensuring that citizens were well-trained, and more recently it shifted once again to the awakening of the critical spirit. Today, the ideal is creativity: the capacity to learn and a lifelong willingness to face new things and modify learned expectations accordingly; there can be no learning without re-learning, without the revision that must be undertaken when we realise the weakness of what we thought we knew. In a knowledge society, education is the capacity to be creative in an environment of particular uncertainty, the capacity to properly manage the cognitive dissonance that gives rise to our failure to comprehend reality (Innerarity, 2010). Therefore, in the world of liquid modernity, we must move away from sporadic education and towards lifelong learning. This entails overcoming security-driven

resistance: the pillars to which we cling because they lend us a sense of security: a mistake in a world filled with insecurities and ephemeral validities.

Conventionally, education has been understood as preparation for life, as personal realisation, and as an essential element in progress and social change, in accordance with changing needs (Chitty, 2002). Orr (2004) declares that if certain precautions are not taken, education may equip people to become "more effective vandals of the earth". He describes education of the sort we have seen thus far as a possible problem, and argues for a new type of education:

"More of the same kind of education will only compound our problems. This is not an argument for ignorance but rather a statement that the worth of education must now be measured against the standards of decency and human survival. It is not education, but education of a certain kind, that will save us."

(Orr, 2004: 8)

"Education, in other words, can be a dangerous thing (...). It is time, I believe, for an educational 'perestroika', by which I mean a general rethinking of the process and substance of education at all levels, beginning with the admission that much of what has gone wrong with the world is the result of education that alienates us from life in the name of human domination, fragments instead of unifies, overemphasizes success and careers, separates feeling from intellect and the practical from the theoretical, and unleashes on the world minds ignorant of their own ignorance."

(Orr, 2004: 17)

Education for Sustainable Development (ESD) has emerged as a paradigm for revising and reorienting today's education. ESD consists of new forms of knowing and learning how to be human in a different way. This education aims to contribute to the sustainability of personal integrity, or in the words of Sterling (2001), to the integrity of the spirit, heart, head and hands. As argued by Dewey and the educational reconstructionists, it is often not enough to do things according to custom or habit, that is, to reproduce the existing social system. Instead, new answers must be sought. If we are to imagine new ways of living and acting, then we must be capable of assessing and bringing about social change, because successfully achieving sustainable development requires the following principles: being aware of the challenge, taking action voluntarily, assuming collective responsibility and forming a constructive partnership, and believing in the dignity of all human beings without exception. These principles for lasting human development, formulated at the 2002 World Summit on Sustainable Development in Johannesburg, imply lessons that largely coincide with the four pillars of education set out in the Delors Report: learning to know, learning to do, learning to live together and learning to be. In the context of ESD, UNESCO (2008) suggested the inclusion of a fifth pillar: learning to transform oneself and society.

In a sense, education must lead to empowerment: through education, individuals should acquire the capacity to make decisions and act effectively in accordance with those decisions, and this in turn entails the ability to influence the rules of play through any of the available options. Thus, education consists in developing not only personal but also social qualities; it is the development of social conscience: awareness of how society works, knowledge of how it is

structured, and a sense of the personal agency which allow action. This agency, however, at the same time restricts our interventions and makes it is necessary to decide our personal degree of action. (Goldberg, 2009). Essentially, it opens a dialogue between the personal and the collective, between common and individual interests, between rights and obligations.

Reformulation of Higher Education

Einstein once said that no problem can be solved from the same level of consciousness that created it. Current needs suggest that we must learn to view the world and therefore education, in a new way. Higher education has in the past demonstrated its crucial role in introducing change and progress in society and is today considered a key agent in educating new generations to build the future, but this does not exempt it from becoming the object of an internal reformulation.

According to the World Declaration on Higher Education for the 21st Century (1998), higher education is facing a number of important challenges at the international, national and institutional levels.

At the international level, there are two main challenges. The first is the role of supranational organisations such as UNESCO in advancing the prospection of trends and improvements, as well as in promoting networking and twinning programmes among institutions. The European Union (EC-JRC, 2010), for example, has stressed that higher education must change and adapt to economic and social needs, that institutional change is essential to educational innovation, and that information and communication technologies must form part of the teaching and learning process. The second international challenge is to encourage international cooperation between institutions in order to share knowledge across borders and facilitate collaboration, which, furthermore, represents an essential element for the construction of a planetary (Morin, 2009) and post-cosmopolitan citizenship (Dobson and Bell, 2006): the assumption of interdependence, "deterritorialisation", participation, co-responsibility, and solidarity among all inhabitants of the planet.

States must provide the necessary financing so that universities can carry out their public-service function. States may also enact laws to ensure equality of access and strengthen the role of women in higher education and in society.

The following are the challenges faced by universities and other institutions of higher education:

Changes in universities as institutions and at the level of internal organisation. These changes should aim to improve the management of resources (human, economic, etc.) and be restructured to improve internal democracy. Universities must continue their mission to educate, train and carry out research through an approach characterised by ethics, autonomy, responsibility and anticipation.

Changes in knowledge creation. Interdisciplinary and transdisciplinary approaches should be taken and non-scientific forms of knowledge should be explored.

Changes in the educational model. New teaching/learning approaches that enable the development of critical and creative thinking should be integrated. The competencies common to all higher-education graduates should be determined and the corresponding expectations should be defined. In a knowledge society, higher education should transform us from disoriented projectiles into guided missiles: rockets capable of changing direction in flight, adapting to variable circumstances, and constantly course-correcting. The idea is to teach people to learn quickly as they go along, with the capacity to change their mind and even renounce previous decisions if necessary, without over-thinking or having regrets. Teaching and learning must be more active, connected to real life, and designed with students and their unique qualities in mind.

Changes aimed at tapping the potential of information and communication technologies in the creation and dissemination of knowledge. The goal of such changes is to create what Prensky (2009) calls digital wisdom.

Changes for social responsibility and knowledge transfer. The work of higher-education institutions must be relevant. What they do, and what is expected of them, must be seen as a service to society; their research must anticipate social needs; and the products of their research must be shared effectively with society through appropriate knowledge-transfer mechanisms.

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EDUCATION AS A PILLAR OF THE 2030 AGENDA. EVOLUTION AND PERSPECTIVES IN THE CONTEXT OF THE COVID-19 CRISIS

Josep M. Vilalta and Pastora Martínez-Samper

"Education is the point at which we decide if we love the world enough to take responsibility for it", wrote Hannah Arendt more than 60 years ago. Education as a responsibility towards others and the planet on which we live. In short, this is the concept of quality education promoted by the 2030 Agenda for Sustainable Development. An international political agenda, approved by the United Nations in 2015, that takes a comprehensive approach to tackling the main global challenges we face as individuals and communities.

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Quality education as a tool for progress and a pillar of the 2030 Agenda

The Agenda is structured around seventeen economic, social and environmental Sustainable Development Goals (SDGs) to be achieved by 2030. A three-pronged indissoluble approach with seventeen indissoluble and interrelated SDGs; some of which cannot be understood in isolation. And among the seventeen, number four seeks to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". This SDG focused on quality education, is the driving force behind the other sixteen because, without its achievement, it will be difficult to aspire to a global citizenship capable of understanding a changing and strained world.

The 2030 Agenda also relies on education as the most powerful tool for personal and collective progress, one that allows us to build more prosperous, educated and just societies. Note how, beyond SDG 4 itself, education is necessary to achieve many of the other goals set out in the Agenda. In fact, sustainability cannot be effective if it is not made into a paradigm by raising awareness and training everybody on the planet. The same can be said for building more just, supportive societies that recognise the equality of all people, or the advancement of a sustainable and innovative economy.

There is nothing new in seeing education on the international political agenda, but the 2030 Agenda emphasises the importance of its quality. What's more, in the words of Irina Bokova, former director-general of UNESCO, for the first time, the aim is to "move beyond literacy and numeracy, to focus on learning environments and new approaches to learning for greater justice, social equity and global solidarity". Also, for the first time, the scope of education is understood to be universal and constant throughout people's lives. And so, inclusive and equitable access to quality higher education has been included as one of the goal's targets.

The 2030 Agenda doesn't forget the teaching profession either. Teachers —in the broadest sense of the word— are presented as key players in the transformation of the citizenship, as facilitators of a learning that understands diversity and develops the skills required to protect the environment and ensure peaceful coexistence. A veritable statement of intent. For this reason, the foundational report for the quality education SDG, "Rethinking Education. Towards a global common good?" (UNESCO, 2015, in Catalan), points out that we must work with teaching teams to improve their qualifications, increase their autonomy and enhance their professional and employment status.

All these elements present quality education as a common good. A common good that goes hand-in-hand with one of the cornerstones of the 2030 Agenda: knowledge. A knowledge shared in schools and universities and transformed into innovations and solutions for communities; knowledge that is generated in academia but also in other environments, such as hospitals, museums, companies and public administrations. In recent years, knowledge has played a strategic role in the progress of societies and economies. We aspire to live in a knowledge society. The Agenda recognises this and advocates the dissemination of knowledge in all spheres, making it available to all so that it does not become a new source of power for the few or a key factor in inequalities between advanced and decapitalised countries.

In short, the 2030 Agenda challenges us to achieve equitable access to a quality education (formal, informal and professional) for all (children, young people and adults) during all stages of life. According to estimates by the Global Education Monitoring Report, meeting this challenge will require a political will that will need to materialise in a global investment of 340 billion US dollars per year between 2015 and 2030. It is a challenge that is both global and local, and a goal that we are still far from achieving.

The evolution of education systems: between improvement and the impact of the Covid-19 pandemic

Despite all the advances of recent decades, one aspect that continues to characterise education worldwide is inequality; the unequal access to education fuelled by numerous other iniquities. Thus, while in global terms 88% of children complete primary education, according to UNESCO's Scoping Progress in Education report, in Sub-Saharan African countries like Malawi, Senegal or Chad, the percentage is lower than 25%. Similar asymmetries exist for secondary and tertiary education.

This geographical inequality between countries is often further exacerbated by factors such as average household income, gender, and race. In fact, only two out of three countries in the world have achieved gender parity in primary education. And, for example, the percentage of children schooled in Laos ranges from 96% for affluent families to 28% for the most impoverished families. But beyond percentages, we mustn't forget that each figure represents a person. And more than 50 million children do not go to school.

However, there have been significant improvements since the 2030 Agenda was approved. In 2019, the pace of access to primary education was progressing fast enough to make it one of the few Agenda 2030 goals on target to be achieved, according to a report from independent scientists The Future is now. Science for achieving sustainable development.

But then, from out of nowhere, the COVID-19 pandemic appeared, and everything stopped. In March 2020, schools, colleges and universities began to close because of the public health crisis. More than 1.5 billion students were affected, which translates to more than 90% of the global total according to data from the Sustainable Development Goals Report 2020.

The global teaching community is concerned about the repercussions of the closures, which could potentially cause learning losses for the school-age generation and increase the inequalities mentioned above. This concern is reflected in a recent report by ECLAC and UNICEF, (in Spanish) which highlights the link between housing deprivation and the violation of other children's rights, such as having a suitable space to study and rest, for the more than 80 million children and adolescents living in urban areas of Latin America.

In an attempt to limit the damage caused by the school closures, alternative methodologies for remote emergency teaching were immediately put in place. But their success depended on the region and educational level, and curricula, support methods and learning evaluation techniques also had to be adapted. The role of teaching staff and families has been fundamental to this adaptation process and the response to the pandemic in general. Yet, on many occasions, these teams and people have found themselves without the necessary tools, training, and support to face this radical change in their daily lives.

Thus, without exception, a global socio-health crisis has generated unprecedented stress in education systems. COVID-19 has exposed an educational reality with numerous shortcomings, many of which have already been identified in the 2030 Agenda. But the pandemic has also given rise to several initiatives that provided the necessary response and essential advances in record time. Unfortunately, we still have no idea when this stress will be relieved.

Education in Catalonia in the context of the 2030 Agenda

In Catalonia, the pandemic took hold amid a process to implement the 2030 Agenda throughout the region and across all sectors, including education.

At the end of 2019, the Government of Catalonia approved the National Plan for the implementation of the 2030 Agenda in Catalonia, which has been adopted and implemented by all the Government's Ministries. With regard to the SDG for quality education, the Plan comprises a total of 81 commitments that cover all levels of education and all actors in the system. This comprehensive set of commitments is designed to address several shortcomings, such as guaranteeing education for 0 to 3 year-olds and reducing school segregation. It also aims to improve certain aspects that have gained relevance with the onset of the pandemic, such as equipping all students with digital skills and insisting on co-education at all levels.

But this work isn't restricted to a ministerial level. Catalan schools and universities are also incorporating the 2030 Agenda into their road maps to meet the targets set by SDG 4 and the other sustainable development goals.

In this aspect, the input of the Catalan university system has been particularly notable. From work started in 2017 by the Catalan Association of Public Universities (ACUP) to compile all the initiatives linked to the SDG's, to closing 2020 with the approval of the 2030 Agenda Action Plan by the Inter-university Council of Catalonia (CIC). The action plan aims to accelerate the incorporation of the 2030 Agenda into the Catalan university system. It was devised through collaboration between the different agents in the system, going beyond the 12 universities to include other agencies and research centres, and is articulated in 5 dimensions:

Strategy and governance
Education and teaching
Research and transfer

Commitment to society Campus initiatives.

A systemic action plan currently without precedent anywhere else world. In a similar vein, also notable is the ongoing work being done by the Global University Network for Innovation (GUNi) which is jointly chaired and managed by ACUP and UNESCO.

These plans complement each other when addressing the seventeen SDGs. Firstly, they seek to address the needs of our education system. Some of these shortcomings are summarised in the diagnosis prepared by the Advisory Council for the Sustainable Development of Catalonia (CADS) in 2016, which included fifteen priorities ranging from ensuring the quality of compulsory education and the equity of the system to universalising the completion of secondary studies. And there are other studies, like The University Pathway: Access, learning conditions, expectations and returns from university studies (Via Universitària: Accés, condicions d'aprenentatge, expectatives i retorns dels estudis universitaris) (2017-2019), in Catalan, which found that just 10.5% of the students studying within the network of Catalan language universities (Xarxa Vives) come from families where the education and employment level of both parents is low. Secondly, the plans go some way to addressing the trends amplified by the COVID-19 pandemic, such as the digital transformation of the education sector.

The reality of the education system in Catalonia is complex, and its shortcomings, strengths and priorities for the future should be analysed in great detail. One such analysis is included in an article on The emergence of educational transformation (in Catalan), recently published by the directors of the Jaume Bofill Foundation's Educational Yearbooks. The authors argue that education must be made a top political priority in our country and that we must progress to a new educational paradigm that, above all, focuses on learning and learners. This priority must translate to a sustained increase in funding, as Catalonia currently lags behind most other European countries when it comes to the public funding of education. The increase should allow for spending on education to reach 5% of GDP within a decade.

Education and culture come in to play as essential vectors for progress and well-being; helping to build citizenship and lay the groundwork for a shared public ethic

Furthermore, according to the authors of the article, there are four spheres of educational transformation: the educational model, equity, professionals and the governance of the system. The transformation should make it possible to guarantee, as a matter of priority, education for 0-3 year-olds; significantly reduce school segregation; tackle school drop-out rates; support the initial and continuous professional development of teachers; increase and improve lifelong learning; empower teaching teams and schools (providing management skills and greater autonomy); foster young talent, and promote education on sustainable development and the 2030 Agenda at all times. It is a proposal for action entirely in line with the National Plan for the implementation of the 2030 Agenda in Catalonia mentioned above.

Quality education for social transformation

Beyond the pandemic, however, the world has faced far-reaching challenges and radical transformations in recent years: the global challenge of sustainability and the fight against climate change for one, but also the transformation of economies and the world of work, the need for global governance and citizenship, the crises in liberal democracies and the rise of populism and fascism, as well as radical transformations in the technological field, such as digitisation, artificial intelligence and advances in biomedicine or new materials that will involve rethinking the world as we know it today.

From this perspective, once again, education and culture come in to play as essential vectors for progress and well-being; helping to build citizenship and lay the groundwork for a shared public ethic.

Quality education as a shared common good. An education that generates talent and knows how to improve and seek new pathways to collective progress. In this context, we find the proposals made by UNESCO's International Commission on the Futures of Education in its document Education in a post-COVID world: Nine ideas for public action (in Spanish) to be extremely relevant. They are:

Commit to strengthening education as a common good. Education as a bulwark against inequalities.

Expand the definition of the right to education so that it addresses the importance of connectivity and access to knowledge and information.

Value the teaching profession and teacher collaboration. Encourage conditions that give frontline educators autonomy and flexibility to act collaboratively.

Promote student, youth and children's participation and rights.

Protect the social spaces provided by schools as we transform education. The school as a physical space is indispensable.

Make free and open source technologies available to teachers and students.

Ensure scientific literacy within the curriculum. Encourage deep reflection on curricula, particularly as we struggle against the denial of scientific knowledge and actively fight misinformation.

Protect domestic and international financing of public education.

Advance global solidarity to end current levels of inequality. Renew commitments to international cooperation and multilateralism.

Despite the current situation, despite the pandemic and the widespread crisis, the diagnosis for education systems is clear. Various committees, associations and governments have put forward multiple proposals to improve the education of the citizenship. And the ideas within them have become increasingly ambitious in terms of population size, educational levels and actors involved. If we love the world enough, we have ten years to make them a reality.

THE SDGS: OUR NEW NORTH STAR

Josep M. Vilalta - GUNi Director and Executive Secretary at ACUP

About the author

Josep M. Vilalta is Executive Secretary of the Catalan Association of Public Universities (ACUP), association formed by the universities of Barcelona (UB), Autònoma de Barcelona (UAB), Politècnica de Catalunya (UPC), Pompeu Fabra (UPF), Girona (UdG), Lleida (UdL), Rovir a i Virgili (URV) and Oberta de Catalunya (UOC).

Before he held the following positions and responsibilities: Deputy Director General for Research of the Government of Catalonia, Head of the Evaluation, Studies and University Cooperation of the Government of Catalonia, Head of the Strategic Planning Unit of the Universitat Politècnica de Catalunya, Coordinator of the UNESCO Chair for University Management, Deputy Director of Management of the Laboratori d'Enginyeria Marítima (Ocean Engineering Laboratory) (UPC) and Executive Secretary of the International Centre for Coast Resources. He has lectured in the fields of public management, public policy and university and research management in different universities and centres. He also promoted and coordinated a Master in University Management and Policy.

In the year 2020, the United Nations 2030 Agenda no longer needs introduction. Almost five years after its approval, nearly everyone knows about its 17 Sustainable Development Goals (SDGs) and the challenges therein, including ending poverty in the world; fighting against the climate emergency; fostering inclusive, equal and quality education systems; achieving full employment with decent work for all; achieving gender equality; and fostering renewable energy and the circular economy.

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The 2030 Agenda contains some undeniable strengths, but at the same time a host of weaknesses make it vulnerable and call it into question in fundamental ways. These characteristics of the Agenda are now more starkly apparent than ever, as the world in 2020 faces an extraordinary combination of crises in the face of the COVID-19 pandemic, and strong calls are coming from around the world for more careful consideration of social equity.

The 2030 Agenda: Strengths and weaknesses in a changing world

The 2030 Agenda's greatest strength, in my opinion, is precisely the enormous impact it has had throughout the world and, above all, the degree of commitment and hope that it has aroused. This may seem to be a minor detail, but it is not. In an era of social, economic, political and technological change, as well as major local and global challenges, the 2030 Agenda is a source of hope and expectation that is generating action everywhere. Governments, institutions and companies around the world are taking on board the SDGs because they create hope and a shared roadmap through the ocean of doubt and crisis all around us.

The SDGs are also admirable for their perspective and orientation: they articulate a multi-faceted vision that is simultaneously holistic (highlighting the interconnection of problems and the need for coordinated and interconnected answers), global (affecting the whole planet and requiring global approaches), partnership-based (infused with the explicit recognition that no institution/organisation can tackle and solve these problems without cooperating with other actors), and part of the global-local binomial (wherein global challenges very often require local answers). Indeed, these ways of thinking about problem-solving seem extremely well-suited to the complex and fast-moving challenges we face today, whether in the public health sphere or on the social justice front.

At the same time, however, the 2030 Agenda includes a whole series of weaknesses that could render it unviable or at least erode much of its potential. For example, beyond the Agenda itself as approved by the UN, the SDGs are not accompanied by any kind of binding legal agreement. With no capacity for enforcing compliance, the implementation of the SDGs is left in the hands of specific

international and multilateral agreements (for example, on matters of trade, employment, the fight against climate change, etc). As such, it is subject to the variable levels of commitment of each of the UN member states and different public, academic, business and other organisations. Similarly, the Agenda lacks specific resources for implementation. Moreover, the SDGs are being advanced at a particular moment in time in which the capacity for action of international institutions is being called into question and multilateralism is also being challenged by a large number of countries. The lack of effective coordination across countries in response to the COVID-19 pandemic presents a stark example of these kinds of unsatisfying multilateral dynamics.

Likewise, the Agenda calls for immediate action (ie addressing urgent challenges) but institutions, businesses and social organisations are burdened with longstanding inertia and are moving slowly, while so-called 'blocking coalitions' are powerful in their fight to maintain the status quo. Finally, the SDGs mainly call for global action (at the level of international institutions) and local action (implicating local entities, regions and cities), but the political reality of the world today still largely rests on nation-states, and does not grant enough autonomy or managerial capacity to actors at different levels.

Higher education institutions and the SDGs: crucial synergies

In the face of these dilemmas, the 2030 Agenda provides an excellent opportunity to re-establish the role of higher education institutions in society. The SDGs present a powerful opportunity for universities to engage with society, both globally and locally, and get them to think about how they can help to improve society, by bringing about social, economic and cultural change. In fact, we are at a historic moment when, beyond the 2030 Agenda, higher education institutions are well-positioned to become key players in society. How and why is this possible?

First, higher education institutions are repositories of knowledge and talent, which are key factors for social, cultural and economic progress.

Secondly, higher education institutions offer space for neutrality, for collaborative work and for inter-institutional dialogue, at a time when co-operation is needed more than ever and in every way. Higher education institutions are also key agents of academic and scientific diplomacy, both powerful tools in an era of change and interdependence.

Third, the university tradition of a dually local and global mission puts it in a strong position, because that is precisely the approach proposed by the 2030 Agenda: advancing science and knowledge for the common good but at the same time addressing and responding to local/regional challenges and demands.

Fourth, education and the transmission of values and attitudes among young people (and increasingly among the entire population under the paradigm of lifelong learning) make higher education institutions a strategic part of the future for new generations.

Finally, and specifically, the international training of thousands and thousands of young people (every day in greater numbers, which are expected to continue to grow exponentially) is vital to this story. International education can enable the development of a globally aware, critically minded and responsible population, and one that is committed to working together for the common good and for the 2030 Agenda. I have often said in this regard that, even if the SDGs are not implemented or if the results are feeble, we will have fully accomplished our goals in the field of (higher) education if we are able to cultivate individuals who are committed to sustainability, solidarity and the common good.

GUNi: a meaningful paradigm

In addition to what can be accomplished by individual institutions, university networks also have a powerful role to play in the context of the Sustainable Development Goals. A notable example of the relevance of networks can be seen in the Global University Network for Innovation (GUNi), which I

am so very honoured to lead. Founded in 1999, GUNi's main goal is to facilitate dialogue between higher education institutions and society, making a significant contribution to innovative reforms in higher education policies around the world, with a focus on public service, relevance and social responsibility. This mission, established twenty years ago, is more relevant today than ever before in general terms, but also specifically in relation to responding to the proposals of the 2030 Agenda.

So, it was no surprise that in 2016 GUNi launched a strategic line of work on the issue of higher education and research in relation to the SDGs. Since then, it has held international conferences and seminars, has promoted and participated in research and knowledge transfer projects, and has advanced studies and publications on the SDGs and their implications for the world of higher education and scientific research.

One of the network's main activities, which today brings together 249 institutions from 80 countries around the world, is the biennial publication of the Higher Education in the World Report series. Notably, the World Report published in 2017 included an in-depth analysis of the social responsibility of universities from the dual local and global perspective. And the latest report, presented in late 2019, analyses the future of the humanities in higher education and the synergies between science, technology and humanities at the beginning of the 21st century.

More than ever before, collaboration between institutions, between countries, between disciplines and between stakeholders is crucial for sustainable progress. In support of these kinds of synergies, GUNi has spent twenty years working to bring higher education more in line with social demands and needs, and we're looking forward to continuing this work for the next twenty years and beyond.

Our shared challenge

Ultimately, the great virtue of the 2030 Agenda at this time of such major change is that it offers a shared guide for cooperation on a global scale and a common language that focuses on humanity's biggest challenges. Higher education institutions are playing a strategic role through their training, scientific research and knowledge transfer programmes, and the Agenda indeed offers a unique opportunity to open universities up to society with the aim of building a better, more dignified and more cultured world. Higher education in general and international education in particular have a historic responsibility in this regard.

With the emergence of COVID-19, and the subsequent simultaneous global health and economic crises we face, the 2030 Agenda not only remains fully in place but is becoming more relevant than ever. In this regard, the United Nations published in March 2020 the report Shared responsibility, global solidarity: responding to the socio-economic impacts of COVID-19, which examines how the pandemic represents a turning point that has affected, in most cases in a negative way, each and every one of the SDGs of the 2030 Agenda. The report invites us to strengthen our commitment to the SDGs by conceiving of them as a shared roadmap towards a more sustainable and inclusive future, essential to overcome this crisis and prepare to better face those to come.

The COVID-19 pandemic will take us to a new reality where we will have to rethink many aspects: from the need to change the relationship between people and the environment, to the importance of governance and global leadership, to the urgency to change the prevailing production and consumption models, prioritise investment in research and innovation, ensure the resilience of public health systems, or safeguard fundamental rights. We hope that we can all work together to find the right answers in pursuit of the Sustainable Development Goals.

QUESTIONS FOR DISCUSSION

What are the main obstacles to the implementation of SDGs at higher education institutions and how can we overcome them? Do different higher education institutions and higher education systems share the same obstacles?

How can we boost effective partnerships to address the SDGs? What elements should be taken into account when establishing a new partnership with the SDGs in mind?

In what areas can higher education institutions have the greatest impact in supporting the implementation of the 2030 Agenda, and how?

The 2030 Agenda gives us a chance to 'internationalise' the curriculum, but also highlights the need to 'localise' it. How can we integrate those perspectives into one curriculum? What are the major challenges faced when integrating the SDGs into the curriculum and institutional strategies?

Should higher education institutions be ranked for their SDG performance?

Links

PODCAST - Josep Vilalta: Higher ed and the SDGs

AFTER COVID-19 (I): EITHER WE SWIM TOGETHER OR WE DROWN

Josep M. Vilalta - GUNi Director and Executive Secretary at ACUP

About the author

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Before he held the following positions and responsibilities: Deputy Director General for Research of the Government of Catalonia, Head of the Evaluation, Studies and University Cooperation of the Government of Catalonia, Head of the Strategic Planning Unit of the Universitat Politècnica de Catalunya, Coordinator of the UNESCO Chair for University Management, Deputy Director of Management of the Laboratori d'Enginyeria Marítima (Ocean Engineering Laboratory) (UPC) and Executive Secretary of the International Centre for Coast Resources. He has lectured in the fields of public management, public policy and university and research management in different universities and centres. He also promoted and coordinated a Master in University Management and Policy

Despite repeated warnings from the scientific community, some people are still viewing the Covid-19 crisis (not just a health and humanitarian crisis, but also an economic and social one) as a one-off, isolated, unpredictable event. This perspective, fuelled by certain politicians from here and abroad, needs to be met with exceptional, ad-hoc responses. Exceptional measures are required to address an extraordinary health crisis in order for a return to purported normality to be possible once it is all over.

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We could also interpret the situation in a way that closely connects to the times we are living in. A huge-scale crisis happening at a historical moment of immense complexity on a global scale: a genuine change of era. And one that will, of course, have substantial, long-term effects on society, the economy, and even on the cultural values and representations of our world at the beginning of the 21st century. With this in mind, we need to ask what effects this monumental social upheaval will have on 'public' affairs and their management, and on common policy. Will the coronavirus crisis really have a substantial effect on public policy and management? Will it do so as just one further phase of a historical process that we can analyse and interpret? My answers to both questions are affirmative, despite acknowledging that our capacity for analysis is limited and too close to the events. In future articles I would like to share with you, the readers, specific and more detailed aspects and angles. Today, however, I telegraphically note seven general effects that the crisis will have, in my opinion, on the political and public management of our societies.

Public matters (the common, the management of public affairs) will again take a prominent role. Despite neoliberal currents, political disaffection, and the current crisis of democratic systems, the crisis has reasserted the need for a robust public space, the cornerstone of advanced societies; therefore, politics (understood as the joint management of the common good) and public management (which develops public policies and essential public services) are more than ever becoming key areas for progress and collective well-being.

The greater importance attached to public affairs and the economic and social crisis that we already have at the gates will require greater political intelligence in more mature and informed societies; at the same time, higher demands will be made of the management of public affairs: professionalism and competence, efficacy and efficiency. Beyond populist proclamations and messianic leaderships (which there will be), the people will demand common sense, political intelligence, and efficient management of public policies.

In this context, knowledge becomes a critical vector for the governance of the common interest. The Covid-19 health crisis has shown us this. Expert knowledge to deal with complex problems. Science, technology and advanced public management at the service of social challenges, whether they are local or global. According to Daniel Innerarity, in his book The Democracy of Knowledge (2011) "the problems that mankind faces today require a major mobilisation of knowledge. If we want to solve these problems, we must be able to generate a great deal of knowledge, which requires forms of organisation and cooperation for which we are not yet sufficiently prepared. (…) The issues that are elucidated in the field of science are also matters of public concern"; and "The main problems in a democracy are less problems of political will than cognitive failures that we must solve with a better knowledge of the complex realities that we govern".

In close interrelation with the previous points, public policies and the management of public affairs will require new values and a greater capacity for response, as well as for anticipation and

foresight. Once again, the crisis we are experiencing in our own skin is exemplifying this. We continue to work with outdated vestiges of a historical period that is no longer ours: aging, slow and reactive bureaucracies, outdated information systems, absurdly inoperative hierarchies, introspective organisations and professionals who only answer to each other without properly serving the people and the common good. Manuel Castells referred to this a few days ago in an article on the "De-bureaucratized Welfare State". We need to look very closely (decisively and steering well clear of pure political and public marketing) at public ethics, integrity, transparency in political management, accountability and policy evaluation. We must humanise public management, make it a reality in the daily routines of thousands and thousands of professionals who, fed up with hollow speeches and proclamations, are demanding recognition and the tools to be able to work with dignity and efficacy.

Despite a certain resurgence of nation-states (retreating, nationalistic and inward-looking), it is inevitable that the politics and management of collective affairs will be approached from increasingly more global and local spheres. The old aphorism of 'thinking globally and acting locally' will take on more strength and meaning. On the one hand, globalisation requires greater degrees of cooperation, solidarity and mediation on an international scale. Despite the current disdain of international institutions, we need more and better international and global governance. There is a long road ahead that is full of uncertainties and obstacles, but the shift towards globally shared agreements and governance is inevitable in several aspects, such as climate change, pandemics, international trade, and public rights and duties. It remains to be seen whether the European Union will be able to reinvent itself and build an ambitious, harmonious political framework, beyond the particular interests of its member states and their populist currents, fostering a new and fairer economic, social and environmental framework. On the other hand, the political management of local affairs (cities and regions) will become more relevant, for these are the places where politics and management become a reality and directly address the people's needs.

Advanced political management of public affairs recognises that the complexity that we were talking about earlier requires a high capacity to forge partnerships between institutions, organisations, businesses and civil society. The recognition, from humility, that no institution has all the tools or capabilities, and that reticular, joint efforts are therefore essential. The hierarchy of a bygone era (which we have also seen defending its role in the management of the state crisis, with somewhat thinly veiled ridiculousness) must give way to collaboration, which also means that public alliances will be more necessary than ever. Again according to Innerarity "The most complex systems cannot be governed from the hierarchical apex, which would mean a simplification that does not match the richness, initiative, and skill of its of its parts (…) A reticular world demands relational governance (…) The new governance aims for a form of coordination between political and social agents characterised by regulation, cooperation and horizontality".

Finally, how will all that we have mentioned impact political and public leadership? The complex society we foresee will require increasingly more competent, reliable leaders, with long-term visions, who collaborate, who recognise their own and others' limitations, who know how to build alliances and give meaning to public policies and management. They will no doubt coexist alongside messianic and populist leaders, who believe in the idiocy of the people and who prescribe simple, immediate solutions to complex, often global, problems. We will see which of these styles prevails in the political arena of each country, and it will no doubt be a reflection of their degree of social maturity and political culture.

As the then President of the European Commission José Manuel Durão Barroso said in 2008, 'either we swim together or we drown together'. This is the fundamental issue that will dominate political and public affairs (both domestically and internationally) in the coming decades.

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HUMANITIES: NEITHER CATASTROPHISM NOR PROTECTIONISM

Josep M. Vilalta - GUNi Director and Executive Secretary at ACUP

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They are profound transformations that affect the very meaning of the notion of "human" in relation to society and life on the planet as a whole. In this context, humanities are not a set of disciplines to be preserved or conserved, but a set of activities that must be built up through relevant research, with the necessary and appropriate goals to take on these new challenges, on the good understanding that they are indispensable. The capacity to produce the sense and the value of the human experience, and to do so from commitment to dignity, equality and the reciprocity of these values, depends on humanities.

Article originally published at Diari Ara (25th June 2019)

Are the humanities in crisis? Why does democracy need humanities? Do they still offer valid criteria for managing the value of what is human? Is there a need for integrated approaches and work between science, technology and humanities? How can the intellectual enjoyment of humanistic disciplines be facilitated and promoted in such a highly technical and utilitarian world? Is it humanities that are in crisis, or is it actually education systems?

These and other questions have certainly been recurrent over the years, as they also are in our highly techno-scientific here and now. The core question is whether, in this advanced society, the historical roots, the dialectic nerve, and the vitalistic and democratic ambition that have forever been associated with the humanities can be forgotten or even neglected. In fact, the debate about the role and the presence of humanities in education systems often leads to two positions that feed one upon the other: the catastrophic view and protectionism, which either highlight 'what is being lost' and warn

of the ethical, political, social and cultural consequences, or otherwise propose different measures to 'conserve and preserve' the institutional and academic space that we have traditionally, from the epistemological division of knowledge, understood the humanities to be.

The debate is not happening in a timeless space, but in a new era in which we are already fully immersed: technological and scientific changes, climatic and environmental challenges, and a highly fragmented and unequal global and post-colonial world. There are neither sectorial nor incremental changes. They are profound transformations that affect the very meaning of the notion of "human" in relation to society (or societies) and life on the planet as a whole. In this context, humanities are not a set of disciplines to be preserved or conserved, but a set of activities (which are also utilitarian and applicable) that must be built up through relevant research, with the necessary and appropriate goals to take on these new challenges, on the good understanding that they are indispensable because the capacity to produce the sense and the value of the human experience, and to do so from commitment to dignity, equality and the reciprocity of these values, depends on humanities.

From this propositional approach and in consideration of our present and the challenges of the future, Catalan public universities as a whole are working on diagnosis, debate and proposals to address the problems with the perception, transmission and application of the humanities. We are looking to do this from an approach based on the problems and challenges of modern society, rather than through the classic disciplinary approach in terms of different academic areas. At the same time, we seek frank and fruitful dialogue between technology, science and humanities, for the sake of the integral education of the people and in order to employ the best knowledge-integrating tools to deal with the human problems and realities of the early 21st century.

From this perspective, we have set up two ambitious projects. On the one hand, through the Global University Network for Innovation-GUNi (which brings together more than 230 institutions from 80 countries), we are preparing a Global Report on the future of humanities in higher education and the synergies between science, technology and humanities, which will be presented publicly in December at the CaixaForum in Barcelona. Nearly 70 authors from all around the world will be contributing, under coordination of an international advisory council and professors Marina Garcés, David Bueno and Josep Casanovas, who hail from diverse but certainly complementary areas. On the other hand, we have embarked upon a conference season at the Palau Macaya, which will be going on until January 2020, entitled 'Meaning and value of humanities in the 21st century' and involving collaboration between the Catalan Association of Public Universities and La Caixa Foundation. Under the scientific direction of Professor Joan Manuel del Pozo, the idea is to promote the exchange of ideas (and proposals) regarding the challenges that society has to face in the 21st century and the role that humanities can play in these challenges, with major emphasis on education systems and their different stages. These two long-term programmes ultimately aim to address the challenges for education systems and the future of humanities for the good of the progress of societies, and this is being done both thoroughly and valiantly, without catastrophism or protectionism.

STATE CONTROL OVER ACADEMIC FREEDOM IN HUNGARY THREATENS ALL UNIVERSITIES

Lesley Wilson, secretary general of the European University Association

The Hungarian government's clampdown on gender studies and research into migration sets a dangerous precedent

Article originally published in The Guardian (6th September 2018)

Universities in Hungary are under serious pressure. They are facing dangerous government threats to academic freedom and autonomy that are unprecedented in the European Union. Most recently, the government has announced its intention to close down all gender studies courses in the country.

The government's reason is that the country has no need for graduates in gender studies, and that there are not enough students – but government officials have also confirmed ideological idiosyncrasies.

Gender studies is a well-established scientific discipline, taught at the most prestigious institutions around the world. The two affected universities, Eötvös Loránd University (ELTE) and Central European University (CEU), are internationally renowned. While gender studies generally does not attract masses of students, CEU has evidence that its graduates find employment, and the programmes are an important part of the universities' international collaboration and exchange.

The move confirms an unsettling and thinly-veiled trend towards increased state control over civil society in Hungary – and higher education and research are no exception.

Following the announcement on gender studies, the Hungarian government has launched a 25% "anti-immigrant" tax on the income of organisations supporting migrants, including universities with EU-funded programmes that assist refugee students and researchers. The CEU has already been forced to suspend its Open Learning Initiative (OLIve), an award-winning education programme for refugees and asylum seekers, as well as a major Horizon 2020 research project on migration policy. Other institutions are faced with similar dilemmas but have not yet gone public. Disturbingly, violations could also result in criminal penalties, including imprisonment, as they could be marked as supporting and encouraging illegal migration.

The work that universities do on gender and migration clearly brings benefits for students and society at large. But these are topics and activities that the government does not like.

As there is no sensible reason for closing down such programmes, this nurtures the suspicion that this is about ideologies and politics, rather than what is best for society. Things are moving quickly– tomorrow, where will the Hungarian government lay its strong arm? And where will Hungary's example resonate in the rest of Europe?

Similar infringements have taken place in neighbouring countries like Turkey and Russia, but the case of Hungary represents state intervention into higher education that has never been seen inside the EU. Alarmingly, the European commissioner for education, Tibor Navracsics – himself Hungarian and

a member of the ruling Fidesz party – has been quoted as downplaying the gender studies case. According to him, it has nothing to do with academic freedom and university autonomy.

Hungarian and international academics think differently, and they have said so in an avalanche of letters sent to the Hungarian government. Here at the European University Association, we believe that these cases strongly confirm the trend towards increased state control that began with legal reforms in 2014, and which has already undermined institutional autonomy in Hungary's universities.

The European Parliament will vote later this month on a resolution to determine if Hungary has breached the values on which the union is founded, but the European Commission needs to recognise the gravity of the situation and the potential domino effect it could trigger across the EU.

Hungary's show of power over knowledge is dangerous as populism gains ground in Europe. Academic freedom and autonomy are at stake, together with key European values like the safeguarding of civil and international rights to freedom of speech and association, and the protection of refugees. The Hungarian government should be mindful that this will damage the country's international reputation and standing, with implications far beyond research and higher education. This is a wake-up call to citizens in Hungary, as well as other parts of the EU, to address their governments. What happens in Hungary concerns all of us.

THE CRIMINALIZATION OF KNOWLEDGE

Judith Butler

About the author

Judith Butler is a professor of comparative literature and critical theory at the University of California at Berkeley. This essay is adapted from her keynote address at the 2018 Scholars at Risk Global Congress, which was held on April 26, in Berlin.

Why the struggle for academic freedom is the struggle for democracy

Article originally published in The Chronicle of Higher Education (8th June 2018)

So many scholars find themselves subject to censorship, imprisonment, and exile. They have lost their positions and worry whether they will ever again be able to carry on their research and their teaching. They have been deprived of their academic position because of their politics, or sometimes on the basis of conjectured or attributed viewpoints and affiliations they do not have. They have also lost their vocation. An academic position can be lost for many reasons, but those who are forced to leave their country and their position of employment also lose their communities of belonging.

A vocation names the accumulated history of a life of research, its direction, and its commitment: One thinks and studies a certain way, one is dedicated to a form of inquiry and a community of interlocutors and collaborators. A faculty position makes it possible to pursue a vocation; it provides the crucial support for writing, teaching, and research; it pays the salary that frees up one's life to pursue dedicated work in one's field. Scholars in exile lose their ability to work in their own language in their own country; they lose the power and freedom to pursue their passion, their commitment, the trajectory of their lives.

An academic career can be destroyed by universities or governments on the grounds that the content of the work, real or imagined, is determined to be a threat to existing powers. Perhaps it was the syllabus for a course or the topic of a supervised dissertation that brought down the wrath of the state; or perhaps it was the political positions one has taken within the university or outside its walls — unionization, demilitarization, opposition to nationalism. Those positions are distorted by the censors and by those with the power to destroy a career and expel a citizen. One's real positions are exaggerated, demonized, and sensationalized. A call for democracy is interpreted as sedition; a call for peace mutates into an alliance with terrorism; a call for freedom is taken to be a call to violence.

A call for democracy is interpreted as sedition; a call for freedom is taken to be a call to violence. As we know, the actual political viewpoints for which scholars are punished can be directed toward a government or its policies or toward a university and its unfair practices, its modes of exploitation, its use of the security police and surveillance to quell open inquiry and public discussion, or its ties to corporate or state interests that lead it to police its faculty. And we know that censorship and dismissal can come from the university, or the regional government, or the state, or a complicitous alliance among these authorities. The punishments take many forms: incessant harassment, threats of violence or actual violence, blacklisting, surveillance, overt or covert censorship of publications, internal hearings or public trials with no due process, open threats, dismissal from the university, expulsion from the country. Take the two decades of legal persecution against Pinar Selek, faulted not only with teaching and advising on the Kurdish question in Turkey, but falsely associated with an explosion in a market for which no evidence established her guilt. At the Federal University of Bahia, in Brazil, at least three faculty members in gender studies were threatened with their lives for working on the controversial topic of the gendered division of labor in the workplace. Or consider Mohamed Habibi, in Iran, whose support of teacher unionization landed him in prison. We must affirm a commitment to those individuals who suffer in all these ways.

Let us consider the difference between academic freedom and rights of political expression — for, as Joan Scott has made clear, they are not the same. Academic freedom belongs to faculty members within universities who have been appointed for the purpose of teaching and pursuing knowledge. Political expression is the right of citizens to expound upon political viewpoints as they please. They converge when academics who speak "extramurally" suffer retaliation or punishment within the university or are threatened with the loss of their positions. Thus the rights of academic freedom and extramural political expression require institutional structures and support within the university, and they require an explicit and enduring commitment from universities. Indeed, the task of the university is undermined when either of those freedoms is imperiled. And though each case of a scholar at risk is distinct, all are bound together by the failure of universities to safeguard those two freedoms. Universities have an obligation to resist forms of external intervention that seek either to control the course of academic inquiry or to punish extramural speech.

The International Association of Universities has argued that it is a central obligation of universities to protect academic freedom and to protect and promote those forms of inquiry, however agonistic, that allow for knowledge about the world in its many vicissitudes. Let us add to that a

second principle: that scholars ought not to be subject to censorship or retaliation on the basis of their political expression within the public sphere.

If and when the government or any other external power intervenes with political interests in the university to mandate or censor its curriculum, its direction, its standards, then the autonomous judgment of the faculty is undermined, and knowledge is restricted and distorted. The exercise of the freedom to think becomes punishable under such conditions. And when administrators ally with those external powers, they participate in the destruction of their own institutions — for they are restricting the open-ended inquiry that defines the very specific form of freedom we call "academic," and withdrawing the infrastructural support it requires.

Further, academic freedom presumes and fosters contesting intellectual views because only through open and engaged contestation does thinking become more nuanced, more grounded, more persuasive, more closely allied with the pursuit of truth. When, through censorship, that vital contest of viewpoints is cut short, so, too, is the critical potential of thought that the university is obligated to keep alive.

Academic freedom and freedom of expression are not the same. The professional activities pertaining to one's academic position should be protected by academic freedom. The extramural utterances any of us make about the world we inhabit, the institutions in which we work, or any matter of public concern should be protected by rights of free expression. This does not mean that academic freedom permits any kind of expression in the classroom, nor does it mean that all political utterances are equally protected as legitimate political expression. But however internally complex these rights are, and no matter how open-ended the debate about their limits and meanings, they constitute principles that must be defended.

Indeed, the open debate about their meaning and limits should be one way that we both enact and defend those principles, for an open-ended contest of ideas is precisely one of their aims. Here we are concerned with those forms of expression that are considered so threatening to an existing power they result in detention, threat, termination of employment, and forced exile. Such punishments are meant to strike terror into the hearts of those who might consider taking a public and critical stance against established authorities in the future. The wall between academic freedom and political expression is porous; it is punctuated by windows and doors. The exterior light casts its shadow within, and the work inside often spills into the halls and into the streets outside. Those vital forms of passage characterize a good academic seminar.

The censor exposes himself as a fearful being. He fears speech and seeks to contain it. A consideration of these two freedoms elucidates the global obligations of universities to oppose censorship, the criminalization of knowledge, and the destruction of the vocational life of those who come under attack for their real or imagined viewpoints. Universities have obligations to many publics; not only to their local, regional, and national communities, but also to the broader global community, in part because research now depends on exchange, translation, and international publication. We need a global commitment to international norms of academic freedom, which means strengthening the powers of public responsibility, including the power to censure, among organizations such as the International Association of Universities and the European University Association. Only an expansive and vigilant global solidarity among institutions of higher education can illuminate and defend these two interlocking freedoms, resist the persecution of scholars, and stem the tide of growing anti-intellectualism and censorship, the shameless contempt for those who tell the histories of the subjugated. By insisting on the freedom of thought, we support those who would question the legitimacy of unjust political forms — including the political structure of the university itself when it offers its fate to corporate interests or state powers. We support those who contest established beliefs

in racism, misogyny, and the exploitation of workers; those who think critically about authority, power, and violence; those who struggle for the unionization of academic work; those who refuse to ratify state ideologies.

Academic freedom is a right, a power, within the university only to the extent that its exercise is institutionally supported and guaranteed. It is not precisely an individual right — it is not a personal liberty — but emerges from the compact made between institution and faculty member. In fact, it is a compact among the academic researcher, the university, and the state, for the state must accept the academic freedom of institutions and agree to restrain itself from intervention into matters that only those appointed within the university are entitled to decide. Conversely, when scholars speak out on matters of public concern, they are exercising extramural rights of expression that ought not to bear upon matters of academic review.

Since scholars are also citizens, academic freedom includes the provision that academics are entitled, like all citizens, to engage in political expression. When extramural expression takes the form of political dissent against authoritarian regimes, the university has an obligation not to let the state inside the door of the university to quell that speech. The resistance of the university to external political interference demonstrates the relationship between academic freedom and the idea of the university as a sanctuary. Sanctuary is a vanishing ideal within the new security state, one worth reanimating not only for scholars at risk but also for the undocumented and those who engage in political dissent — in other words, for all those who have reason to fear the state by virtue of their precarious position. Censorship has of course silenced critical voices and destroyed careers. And yet censorship as a form of power shows its weakness. Indirectly it admits the deep fear that censoring authorities have of the power of speech, of critique, of open-ended inquiry. We can see that overtly authoritarian regimes — and they seem to be on the rise — permit open critique of the government only when they are sure that critical thought has no political power. Censorship is always an indirect confession of fear. The censor exposes himself as a fearful being. He fears speech and seeks to contain it. His fear attributes to his opponent's speech a power that it may or may not have. Fearful, he seeks to produce fear in others. And when the censors start to come after the seminar, unionization, heterodox views, or new forms of study that call into question economic and social domination, then we are getting the message: They fear the political power of thought in speech. They fear that critical inquiry sustained by academic freedom can embolden and refine the contestation of political authority. Are they right? In a sense, yes. Authoritarians have grounds to fear both academic freedom and the freedom of political expression. These freedoms can flourish only when the state is restrained from punishing academic work regardless of how it represents the state, and only when the state refuses to take retaliatory action against political dissidents. So a regime that opposes freedom has every reason to fear those who claim both sorts of freedom. Although academic freedom and freedom of political expression are not the same, punishing academics for their real or imagined political power tells us something about the role of universities within democratic life. Universities produce ideas that have a life of their own; the free circulation of those ideas is part of democratic political culture, and the protection of that circulation is an obligation of democratic societies. Perhaps the structured form of conflict that defines academic freedom implies a broader conception of how to approach conflict resolution in other domains. Scholars invariably disagree, and their disagreement is crucial to the growth of new fields and new knowledge. Cultivating productive forms of conflict is what we seek to do both within the walls of the university as we pursue knowledge and outside those walls as we engage in furthering democratic practices of debate and contestation within the public sphere.

When 1,128 of our Turkish colleagues signed their Petition for Peace, in 2016, they sought to reanimate a diplomatic negotiation between the Turkish government and the Kurdish political

movement. They called for more speaking between the two sides. They opposed violent conflict. They asked for a dialogue that would be open, difficult, and oriented toward making violence a thing of the past. But for the Erdogan regime, the call for peace could only be construed as an alliance with Kurdish militants. The signatories were accused of making terrorist propaganda. The Turkish regime insisted that the effort to break out of a framework consisting of two violent positions and nothing more — the effort to imagine peace — was itself part of the logic of war. More than 69,000 students are now behind bars; more than 5,000 academics have been purged from their positions. Fifteen universities have been shut down.

And when Palestinian and Israeli scholars call for the end to the occupation, or when they affirm the Palestinian right to political self-determination, even the right to return, or call for a boycott as a nonviolent means to bring Israel into compliance with international norms, why are they not regarded as searching for a peaceful resolution to a continuing form of colonial rule? Instead they are accused of treason, of seeking a violent overthrow of the state. For those who are at war, for those who cannot think outside the framework of war, the critique of war can be heard only as a war cry.

And what about the Iranian scholars who have been jailed or expelled? Or the threat to higher education in India, where support for the rights of the Dalit can land a scholar in jail? What we call open debate or freedom of speech is cynically misconstrued as an excuse, a ruse, an instrument for an opposition party to destroy the state. Authoritarianism is fueled by the desperate passion to amass power and to silence politically oppositional speech before it has a chance to be heard.

Academic freedom relies on democratic public institutions committed to the principle of nonintervention by states, religious authorities, and corporate powers in the production and dissemination of knowledge. Thus the struggle for academic freedom belongs to the struggle for democracy. Academic freedom belongs to the university, and yet universities belong to their locations and polities. The walls are more porous than legal distinctions sometimes allow.

What the authoritarian fears is that open discussion in a university seminar will move outside those walls. They are right to fear the circulation of ideas, which are unpredictable and uncontrollable. And they are right to fear those ideas that contest the legitimacy of authoritarian rule, or fascism, or racist regimes, since once the unjust character of those regimes is openly demonstrated and discussed, once public life is given to those forms of intellectual critique, people may well identify and oppose unjust rule and rise up to demand the end to injustice.

This leads me to a final question: What obligations do governments and institutions have toward those who have been forced to leave their scholarly careers, their homes, their networks of kinship and their friends, their countries, for fear of persecution or arrest on the basis of their real or imagined political views? The task is, in part, to fortify national organizations dedicated to defending academic freedom, which includes the right to extramural political expression. Another task is to build transnational ties, new modes of cooperation that share wealth, workspace, community, and which give scholars at risk a new way to imagine and pursue their vocational future. We should create the widest possible network of solidarity dedicated to the right to think and speak.

Together we must think further about the financial and institutional support to be offered to scholars who have lost the guarantee and the conditions upon which freedom — both academic freedom and freedom of political expression — relies. A multilingual and multiregional alliance is called for, one that provides sanctuary when universities or governments become persecutory, that supports freedom of expression in the face of its criminalization. Against the persecution of the free mind, which ruins a vocation and exposes a life to destitution, we must form a vital solidarity. We must work together with scholars at risk to make public our judgment of injustice and persecution, one with the power to unleash freedom as a contagious ideal that deserves a vigilant safeguard.