



CREATIVE POTENTIAL OF FUTURE SPECIALISTS IN REPAIRING AND MAINTAINING AUTOMOBILES

Volodymyr Hodun ¹

¹ *Postgraduate Student at the Institute of VET of the NAES of Ukraine, Kyiv, Ukraine, <https://orcid.org/0000-0002-1629-1143>, e-mail: cbgg@ukr.net*

Abstract:

The relevance of the article lies in the contradiction between the growing need of service centres and repair companies for highly qualified and creative engineering staff and the inconsistent views on the nature, content and structure of creative potential of future specialists in repairing and maintaining automobiles, unfavourable conditions for its development in colleges.

The article *aims* to define, specify the content and justify the structure of creative potential of future specialists in repairing and maintaining automobiles.

Research methods include a theoretical analysis of scientific sources – to identify the coverage of the research problem; comparison – to study scientific approaches to solving the research problem; analysis and synthesis – to determine the closest generic and specific characteristics of the phenomenon under study; systematization – to justify its structural components.

Results: the concept of “creative potential of future specialists in repairing and maintaining automobiles” has been defined; its content has been clarified; its structure has been justified; its basic characteristics have been determined.

Conclusions: the concept of “creative potential of future specialists in repairing and maintaining automobiles” is an integrative characteristic that contributes to the success of one’s professional activities; this phenomenon is a complex construct with certain components (motivational-axiological, intellectual-creative, cognitive-pragmatist, emotional-volitional and personal-reflexive) and basic characteristics (a synthesis of creative and technical skills; an aptitude for creative technical activities; willingness to discover effective solutions to problems in the field of automobile maintenance, repair, restoration or quality; the ability to systematically combine methodological, theoretical, and polytechnic knowledge; certain personal and professional qualities).

Keywords: *creative potential; future specialists in repairing and maintaining automobiles; content and structure of creative potential.*

Introduction. Scientific and technical progress, globalization and European integration urge one to modernize all spheres of production, service and transport. The motor transport industry is improving rather fast, which is not unexpected. A significant share of all cargo transportation (about 80%) and passenger transportation is conducted by automobile transport. Besides, the number of road vehicles is constantly growing, and the automobile fleet of the country is updated daily with the latest models of Ukrainian and foreign cars. Meanwhile, the

premium car service system is growing rapidly, and the latest technologies for diagnosing and repairing engines, chassis, transmission are being introduced. In this regard, service centres and repair companies require highly qualified, professionally mobile, creative engineering staff to handle high-tech equipment. It is this factor that researchers and employers identify as the main reason for the significant backlog of the Ukrainian motor transport industry from advanced automotive countries. Indeed, graduates from pre-higher and higher

education institutions do not yet have sufficient skills to creatively solve problems related to maintenance and repair of modern automobile equipment.

This situation is, first of all, caused by the significant gap between educational content and today's reality. Only for the past decade, the Ukrainian automobile fleet has been updated with vehicles with extremely complex construction and diagnosis and repair technology. The latest models are equipped with economical, powerful, environmentally friendly internal combustion engines. They are mainly assembled with automatic gearboxes, adjustable power steering, complex braking system with a set of active safety devices (electronic brakeforce distribution, dynamic stability control, automatic emergency braking, anti-skid system). Besides, modern automobiles have very complex automation systems: onboard computer, immobilizer, climate control, central locking with decoder. Accordingly, maintenance and repair technologies involve the use of complex technological equipment, lifts, stands, laser and electronic systems, modern computer software.

As one can see, the realities of the motor transport industry significantly increase the requirements for professional training of future specialists in repairing and maintaining automobiles (hereinafter "automobile mechanics") in pre-higher education institutions. It is especially associated with their readiness to provide high-quality services, professionally monitor the mechanical condition of automobiles. This is mostly about the need to teach future automobile mechanics to solve those problems that even their predecessors have never dealt with, strive to obtain and generate the latest information, take initiative and demonstrate technical creativity.

Quite noteworthy are the issues of future automobile mechanics' creativity, innovativity and ability to generate ideas and formulate hypotheses to solve technical problems. This is because "the main purpose of higher professional education is to enable future specialists to become real actors in professional activities and strive for personal and professional self-actualization" (Stadnychuk, 2019, pp. 4-10).

Sources. It was only in the 1990s when Ukrainian researchers of pedagogy and psychology began to use the concept of "creative potential". A theoretical analysis of relevant scientific sources on the research problem shows that there is no consensus view on its definition. Some researchers consider creative potential as a personal construct (Glотова, Korobkova, Moliako, Matiushkin, Salamatova,

Sierykov). Meanwhile, Bogoiavlenska, Brushlinskyi, Volkova identify creative potential with one's creative skills. At the same time, Begidova, & Lipilina (2013), Domina (2011), Evinzon (1988), Kravchuk (1992), Murashko (2010), Postaliuk (1989) view creative potential as one's readiness, ability, trait or resource and offer various approaches to understanding its content and structure.

Importantly, Kostenko (2020), Koshuk (2005), Popova (2009) believe creative potential to be an ability or quality of an engineer or a mechanical technician. One should also pay particular attention to Titova's monograph (2019), in which the author proves the need for systematic development of creative potential as a complex personal trait in future agricultural engineers.

The article aims to define, specify the content and justify the structure of creative potential in future specialists in repairing and maintaining automobiles as an integrative personal characteristic.

Research methods include a theoretical analysis of scientific sources – to identify the coverage of the research problem; comparison – to study scientific approaches to solving the research problem; analysis and synthesis – to determine the closest generic and specific characteristics of the phenomenon under study; systematization – to justify its structural components.

Results and discussion. The findings of some relevant studies indicate that creative abilities, skills, as well as other personal and psychological characteristics, can be effectively formed and developed. Together they constitute creative potential as one's ability to act creatively, create something new, discover original methods of solving problems and generate ideas to update and improve the surrounding reality. Mostly, researchers consider the following characteristics as the most important aspects of this personal construct: 1) it is everyone's inherent ability to perform creative activities; 2) it is characterized by one's constant need for creativity, as well as by readiness for creative self-realization; 3) a person with a well-developed creative potential has skills and abilities to identify and address problems, find solutions and implement them into a specific product.

As seen from Table 1, however, the opinions of researchers on the concept of creative potential still vary significantly. This is due to the undeveloped conceptual and terminological tools of modern pedagogical theory, as well as the multifaceted and multidimensional nature of the phenomenon under study. Given that the contextual range of using the term "creative

potential” is quite wide, the article attempts to define this concept based on some relevant studies. It must be noted that a definition of the concept is understood as a logical operation that reveals the content of the concept or establishes

the meaning of the term that denotes it (Pasko et al., 2004). Besides, the scope of the concept means a set of objects generalized under this concept. Thus, the scope is a class (number) of objects implied by this concept.

Table 1

Researchers’ views on the concept of creative potential

Numerical order	Authors	Definition
1	2	3
1	O. Titova	One’s integrative characteristic that is based on genetically (naturally) determined human inclinations and aptitude for technology and technical creativity and enables one to perform innovative engineering activities effectively due to a systematic combination of technical skills, methodological knowledge, personal and professional qualities (creativity; technical intelligence; the ability to combine, find similarities, reconstruct; inspiration; intuition; rich imagination; persistence; independence; determination) and readiness for creative self-realization and self-development (Titova, 2018).
2	S. Begidova, E. Lipilina	1) personal potential: one’s resources (intellectual, mental) and abilities manifested in a particular situation; 2) creativity: an attitude expressed in the vision of the problem from a different angle, freedom from stereotypes, openness and focus on non-trivial solutions (Begidova, & Lipilina, 2013).
3	G. Glotova	A natural integrative characteristic, which reflects one’s ability to perform creative activities, i.e., actualize one’s essential, creative resources in real transformational practice (Glotova, 2005).
4	O. Koshuk	An integrative characteristic, organically inherent in a specialist with flexible, nonlinear thinking and active imagination, who systematically identifies and solves innovative tasks, generate non-standard ideas and follows market needs in engineering and technical activities (Koshuk, 2005).
5	O. Popova	A set of personal traits that reflect the specialist’s system-forming ability to actualize essential creative resources in engineering and technical activities (only if they are well-pronounced, complementary and focused on professional-creative activities (Popova, 2009).
6	M. Sosnin	Integration of one’s potentials and creative competencies in the manifestation of professional competence, in particular in the field of engineering and construction of technical facilities (Sosnin, 2009).
7	I. Murashko	A capability to create, find something new, act in original and non-standard ways (Murashko, 2010).
8	V. Moliako	One’s creative resources and ability to perform creative actions as a whole (Moliako, 2008)
9	Yu. Kulyutkin	One’s pursuit of innovation, openness to everything new; independent, original and flexible thinking; the ability to change methods of action quickly and according to new conditions (Kulyutkin, 2001).
10	S. Evinzon	A special characteristic that shows how much one’s pragmatist qualities comply with the social norm, required for self-determination as the subject of creativity (Evinzon, 1988).

Table 1 (continued)

1	2	3
11	N. Postaliuk	An integrative manifestation of one's various parameters and qualities which are characterized both quantitatively and qualitatively; in addition, this ensemble has a multilevel and subordinate structure (worldview, guidelines, knowledge, thinking, volition) (Postaliuk, 1989).
12	P. Kravchuk	A system-forming quality that reflects the relations between all of one's abilities; an integrative phenomenon that synthesizes one's essential creative abilities in real practice and super-relationships (Kravchuk, 1992).
13	Yu. Domina	A systemic characteristic that enables one to create, find something new, unknown to oneself and, as a result, unique (Domina, 2011).
14	O. Glukhovskaya	One's dynamic and integrative characteristic (personal qualities, knowledge, skills, beliefs, attitudes) that determines the need, readiness and capacity for the subject's creative realization and development (Glukhovskaya, 1997).
15	I. Bila	A set of capabilities and tools that can be put into action, used to solve certain problems, achieve goals (Bila, 2014).
16	N. Cherepovska	One's ability to create in general; hidden resources in terms of an intellect (emotional, volitional); a system of psychological qualities that allow one to perform creative actions in the form of producing rational strategies and tactics to create something new (Cherepovska, 2006).
17	T. Amabile	A combination of uniqueness and usefulness (Amabile, 2012).
18	B. Hinton	One's creative capability and potential (Hinton, 1970).
19	L. Pereira	One's ability to use mental faculties to create something new and useful (Pereira, 1999).
20	J. Plucker, R. Beghetto, G. Dow	The interaction between abilities; the process and environment through which a person or a group of people create a special product that is new and useful to society (Plucker, Beghetto, & Dow, 2004).

In turn, *the content of the concept* is a set of essential characteristics, inherent in the class of objects reflected in this concept. In this case, one should refer to a study by Pasko et al. (2014) which offers an understanding of the scope and content of the concept: "... if one wants to define the scope of the concept, one must answer the question "How many of such objects exist?", and if one's wants to define the content – "What is it?" or "What is it like?" (p. 9).

Finally, it is vital to reveal the rules that one can use to define the concept of "*creative potential of future specialists in repairing and maintaining automobiles*". They are as follows:

- *a definition must be proportional*; in other words, the scope of the concept being defined must be equal to the scope of the defining concept;

- *a definition should not contain circles*: a circle arises when *dfn* is defined through itself or when in one context *dfd* is defined through *dfn*, and *dfn* through *dfd*;

- *a definition must be clear and concise*: that is, the content and, of course, the scope of the concept must be unambiguous;

- *a definition should not be limited to an objection* (Pasko et al., 2004, pp. 14-15).

Thus, it is necessary to determine the closest generic characteristic and, subsequently, specific characteristics that distinguish the elements of the defined concept's scope from those of the scope of the generic concept (Pasko et al., 2004). It must be noted that the concept of "potential" is a general scientific category that the Great Explanatory Dictionary of the Ukrainian language (2005) interprets as a set of available tools, capabilities, productive forces, resources that can be used in any field.

Interestingly, scholars associate the formation of one's creative potential with both natural and social factors. They claim and, one must agree with this point, that the invariant (invariable) component of creative potential is based on one's natural, inherited

talents, personal qualities (temperament, sensorimotor coordination, sexual characteristics, biogenic needs – genetically determined and conditioned by the natural environment that reflect one's dependence on certain conditions). Naturally, the talent, interest, passion, and love for technical creativity are expressed in each student in different ways. At the same time, methodological knowledge as a tool of creative activity, technical knowledge and skills, creativity, persistence, determination, reflection and other qualities constitute a variant part of future automobile mechanics' creative potential.

The analysis of relevant works related to the concept of one's creative potential show that researchers tend to use the following generic concepts: *readiness* (a wish to do something); *ability* (one can do something, behave in a certain way); *personal trait* (a quality characteristic of someone or something); *personal characteristic* (a description, definition of essential, characteristic features of someone or something); *personal quality* (one or another characteristic feature, trait of someone or something); *personal construct* (something that appeared as a consequence of creative activity, creative process; something that arose as a consequence of certain natural processes); *resource* (a tool, opportunity that can be used if necessary); *means* (some special action that allows one to do or achieve something; a way of doing something) (*Velykyi tлумachnyi slovnyk ukrainskoi movy, 2005*).

Now, it is necessary to determine the closest generic characteristic of the phenomenon under study. Given that *personal construct*, as the broadest of the analyzed concepts, is viewed as a consequence of creative activity, creative process or certain natural processes, one should first define a feature included in the set of personal construct's objects. Second, *personal trait* (partially) includes "*personal quality*". In other words, it is a concept of partial coincidence (scopes partially coincide) (see Fig. 1). Third, "*resource*", "*means*" and "*ability*" cannot, as generic features, reflect the full range of features of such a complex and multifaceted concept.

In this regard, the closest generic feature of the "*future automobile mechanics' creative potential*" concept, as rightly noted by Titova (2019), Koshuk (2005), Glukhovskaya (1997), should be an *integrative personal characteristic* (integrative: 1) it refers to integration (the combining of two or more parts into a whole), unifying; 2) continuous, cohesive (Bilodid, 1973, p. 35).

It is essential to justify the main specific characteristic of the studied concept which distinguishes the elements of its scope from those of other similar characteristics of the specialist's personality. In this case, one can agree with Titova (2019) that technical and creative abilities form the core of creative potential in engineering staff. Indeed, any human activity requires certain abilities. Technical abilities enable one to engage in technical activities (technical understanding – the ability to comprehend the construction and operation of technical devices quickly and accurately; technical performance – the skilful handling of mechanisms, machines, tools; the ability to perform technological operations using mechanisms and machines; technical construction activity – improving existing constructs and creating new technical objects) (Davletshin, 1971). According to Davletshin (1971), it is a synthesis of one's mental characteristics that show whether one is capable of technical activity. It is one's ability to understand and operate equipment, make technical products, as well as an aptitude for technical invention and construction.

This aspect is of paramount importance. After conducting extensive experimental research, Davletshin (1971) identified three components of technical activity. They are the following: technical understanding (the ability to comprehend the construction and operation of technical devices quickly and accurately); technical performance (the skilful handling of mechanisms, machines, tools; the ability to perform technological operations machines to produce technical means based on ready-made drawings and technical maps); technical construction activity (improving existing constructs and creating new technical objects) (Davletshin, 1971).

At the same time, a future automobile mechanic with a well-developed creative potential must be creative, demonstrate systemic and comprehensive knowledge, initiative and innovation. He or she should strive for creativity since creative abilities are the main component of such motivation. Given that the research problem deserves a separate and detailed study, the mentioned psychological characteristics can be associated with such qualities as active imagination, good memory, non-standard thinking, cognitive curiosity, independence of judgement, intuition, willingness to take risks, impulsiveness, originality, scepticism, a critical look at things considered "sacred", stable focus on creativity, courage in posing the problem, persistence and efficiency (Tarara, 2014).

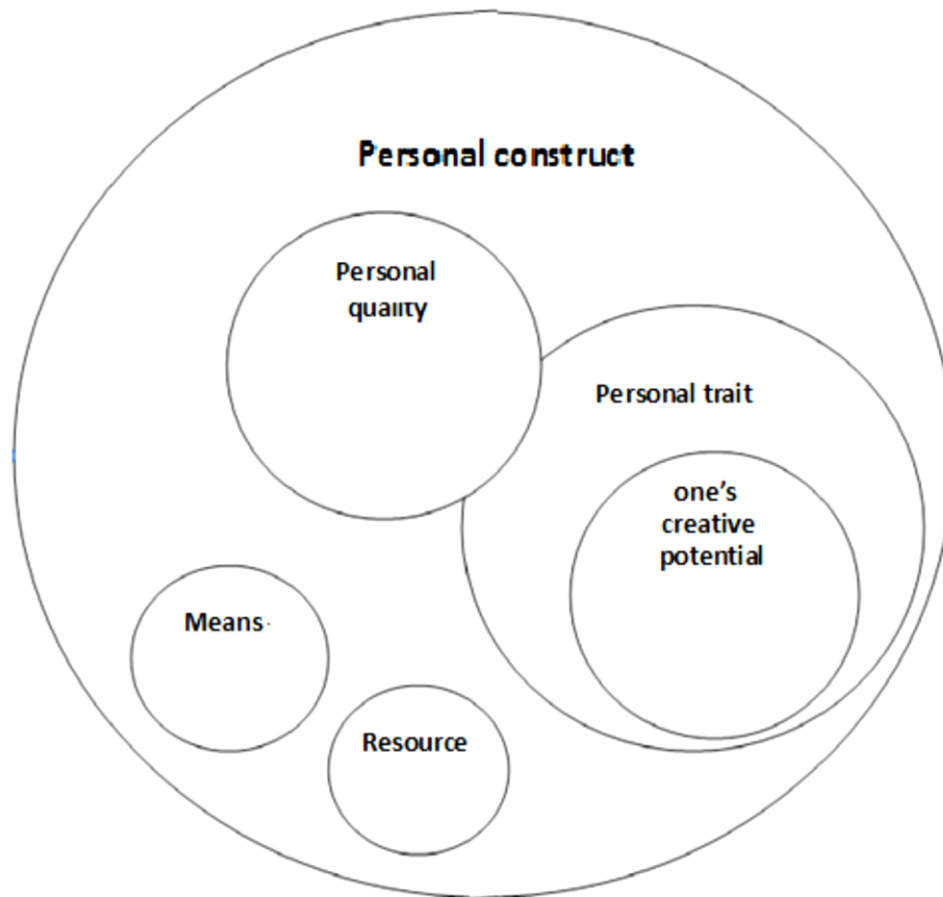


Fig. 1. Genus-species relations within the creative potential concept via Euler's circles

It is known that both technical and creative abilities lead to technical creativity, that is “some purposeful human activity which results in fundamentally new technical facilities and improves device construction, tools, technological processes, work planning” (Tarara, 2014, p. 9). Thus, one can conclude that creative technical activity “lies in solving construction-related, technological, organizational and economic problems” (Tarara, 2014, p. 9). Therefore, a synthesis of one's creative and technical abilities can be considered as the first essential specific characteristic of the studied concept.

The second one is *the resources that allow one to set and solve new tasks in the field of automobile transport repair and maintenance*. Scholars usually understand the term “personal resources” as certain opportunities, reserves and values that are used or can potentially be used by the subject of the activity. As rightly pointed by Titova (2019), one's psychoenergetic resources reflect the degree of actualization of one's intellectual and creative forces, as well as the level of methodological, theoretical, polytechnic knowledge, including about automobile transport.

The analysis of existing studies, as well as the author's of the article previous findings, shows that

a characteristic feature of the studied phenomenon should be one's motivation towards creative technical activity, search for non-standard solutions, interest in creativity and creative self-realization. In this regard, an important essential characteristic of future automobile mechanics' creative potential is *their striving to find original solutions to problems associated with operation, repair, restoration or quality control of automobile transport and readiness for creative self-realization*.

The definition should also include a specific characteristic that describes those personal qualities and values which allow automobile mechanics to achieve creative levels of professional activity. First of all, it is about *creativity; technical thinking; technical ingenuity; the ability to combine, find similarities, reconstruct; inspiration; intuition; rich imagination; persistence; determination, reflexive and other qualities*.

Thus, the *creative potential of future specialists in repairing and maintaining automobiles* is an integrative characteristic that is based on a synthesis of one's creative and technical abilities and aptitude for creative technical activity, the resources and striving to find original solutions to problems associated with operation, repair, restoration or quality control of automobile transport due to a

systemic combination of methodological, theoretical, polytechnic knowledge, personal and professional qualities (creativity; technical thinking; technical ingenuity; the ability to combine, find similarities, reconstruct; inspiration; intuition; rich imagination; persistence; autonomy; discipline; determination) and readiness for creative self-realization.

It is also vital to analyze the content and structure of creative potential in future automobile mechanics. It must be noted that the available sources on the research problem offer various approaches to selecting structural components of this integrative personal characteristic. The analysis of certain studies (Begidova & Lipilina, 2013; Glotova, 2005; Kravchuk, 1992; Popova, 2009; Moliako & Muzyka, 2006; Titova, 2019), as well as the author's of the article findings, makes it possible to identify the following content-related components of the phenomenon:

- autonomy, independence of judgement;
- interest in design engineering, technical creativity;
- creative abilities that allow one to implement innovative ideas;
- innovativity;
- readiness to take risks and make mistakes;
- self-assessment, forecasting skills;
- critical perception of the obtained data, constructions and technical facilities;
- digital literacy (the ability to select, process, store and use technical information, use ICT);
- argumentation skills;
- knowledge transfer;
- thirst for new (especially methodological) knowledge;
- commitment to success;
- knowledge of project activities patterns;
- commitment to one's position;
- the ability to read and create diagrams, drawings of structure models for mechanisms, machines and devices;
- the ability to prove hypotheses;
- the ability to adapt, improve or change objects or ideas;
- diligence, technical ingenuity;
- the ability to generate new ideas;
- methodological training (self-study skills);
- technical training (technical knowledge; the ability to operate, maintain, repair equipment and use diagnostic tools);
- the ability to behave oneself in non-standard situations related to the mechanical state of technical objects;

- an understanding of the social significance of creative technical activity;
- proactivity; commitment to result;
- a system of knowledge about a creative component of automobile mechanics' professional activities;
- interest in modern equipment, innovative technologies in automobile production;
- a positive emotional state, optimism;
- spatial thinking;
- the ability to solve creative technical tasks;
- divergent thinking (mobility, originality, accuracy and flexibility);
- technical thinking;
- planning skills;
- organization and time management skills;
- professional curiosity;
- friendliness, altruism, teamwork skills;
- self-control skills;
- adequate self-esteem, self-regulation, reflexive culture;
- the ability to solve various technical problems;
- quick response to new technical information;
- fruitful combination of cognitive and professional interests;
- motivation towards creativity, needs and motives of self-expression;
- intuition;
- the ability to welcome criticism; the ability to offer constructive criticism;
- the ability and motivation to create something new and improve existing models and mechanisms;
- the ability to work in unknown conditions;
- critical thinking;
- a high intellectual level;
- inclinations and aptitudes manifested in hypersensitivity, selectivity of mental processes' mobility.

The creative potential of future automobile mechanics, as an integrative personal characteristic, can be also considered as a multi-component construct. Back in 1995, the famous psychologist Moliako (2006, p. 15) analyzed his and fellows' research findings (Matiushkin, Shadrikov, Holubieva, Bogoyavlenskaya, Babaev et al.) and presented the following general structure of creative potential:

- 1) inclinations and aptitudes manifested in hypersensitivity, certain selectivity, preferences, general dynamism of mental processes;
- 2) interests, their focus, frequency and systematicity of manifestations, dominance of cognitive interests;

3) curiosity; the ability to create something new, identify and solve problems;

4) quick processing of new information, creation of associative arrays;

5) the ability to compare, set standards for further comparisons, select;

6) manifestations of a general intellect – understanding, quick assessment and selection of solutions, adequacy of action;

7) emotional colouring of certain processes, emotional attitudes; the influence of feelings on subjective evaluation, choices, preferences;

8) persistence, systematicity, determination, decisiveness, diligence;

9) creative focus on the search for similarities, combinations, reconstructions, changes in options, decision-making, time management, use of resources;

10) intuitionism – the ability to manifest unconscious and quick (sometimes instantaneous) assessments, predictions, decisions;

11) relatively quick and effective acquisition of skills, abilities, techniques; effective professional performance;

12) the ability to realize one's strategies and tactics when solving various problems, tasks; the ability to find a way out of difficult, unusual, extreme situations.

In the same 1995, Kuzmina (1995, p. 46) proposed a slightly different structure of the specialist's creative potential in the context of comparative acmeological studies on personality development problems:

1) individual qualities (gender, age, family structure, birth coordinates, health status);

2) levels of productivity when solving creative tasks (higher, high, average, etc.);

3) integrative schemes of information self-sufficiency, role-based interaction, feedback analysis when solving creative tasks;

4) psychological prerequisites for productive solutions to creative tasks (a system of relations, attitudes, values, orientations, motivation);

5) abilities, competence structure;

6) one's cognitive, emotional and volitional qualities when solving creative tasks;

7) structures of abilities (gnostic, constructive, communicative, organizational);

8) the influence of a context (i.e., professional, non-professional, family-related);

9) social influence – evaluation, encouragement, support, social roles;

10) psychological readiness to restructure (reconstruct) activities in search of new ways to

solve creative tasks (self-esteem, internality, externality, dogmatism, intuition)'

11) ways of considering restrictions and requirements for solving creative tasks defined by the profession and production;

12) ways of considering restrictions and requirements for solving tasks defined by moral principles.

Naturally, there are some differences in the above-mentioned structures of creative potential that lie in different views on the essence of the phenomenon. Moliako (2006, p. 14) considers creative potential as "a resource of one's creative capabilities, activities and actions". Kuzmina (1995) views creative potential at the tops of the "acme" (the highest level of manifestation). Nevertheless, the presented structures complement each other and prompt the search for architectonics in the creative potential of automobile mechanics.

Some scholars, who studied creative potential of engineering staff, offer the following structural components of this integrative personal characteristic:

- variant (intellectual, creative, emotional, volitional, motivational, evaluative components) and invariant components (Glotova, 2005);

- motivational-axiological, cognitive-procedural and reflexive components (Popova, 2009);

- motivational-volitional, intellectual-creative, pragmatist and reflexive components (Titova, 2019);

- axiological, motivational, cognitive, practical, emotional-volitional components (Andrievskaya, 2014);

- motivational-axiological, cognitive-pragmatist, intellectual-creative and personal-reflexive components (Kostenko, 2020).

The presented components of future automobile mechanics' creative potential, as well as scholar's approaches to its architectonics, prove that the structure of this phenomenon should include motivational-axiological, intellectual-creative, cognitive-pragmatist, emotional-volitional and personal-reflexive components.

The content of the *motivational-axiological* component shows the levels of students' values-based motivation to acquire methodological and professional knowledge; interest in technical creativity, curiosity; focus on discovering similarities, combining, changing options to solve technical problems; needs and motives for creative professional activities; ability to know how to operate, repair and maintain modern automobiles;

attitude towards creative self-development. This component stimulates and motivates creative technical activity in future automobile mechanics in the structure of creative potential.

The *intellectual-creative* component involves students' criticality, originality and flexibility of thinking; ability to easily generate ideas, analyze and synthesize data, build associations and comparisons;

intuition, imagination; knowledge transfer; self-control in unusual situations; focus on creativity; talents; intellectual breadth; anti-conformism. Combining intellectual (including high technical knowledge) and creative abilities, this component enables a creative function of automobile mechanics' creative technical activity.

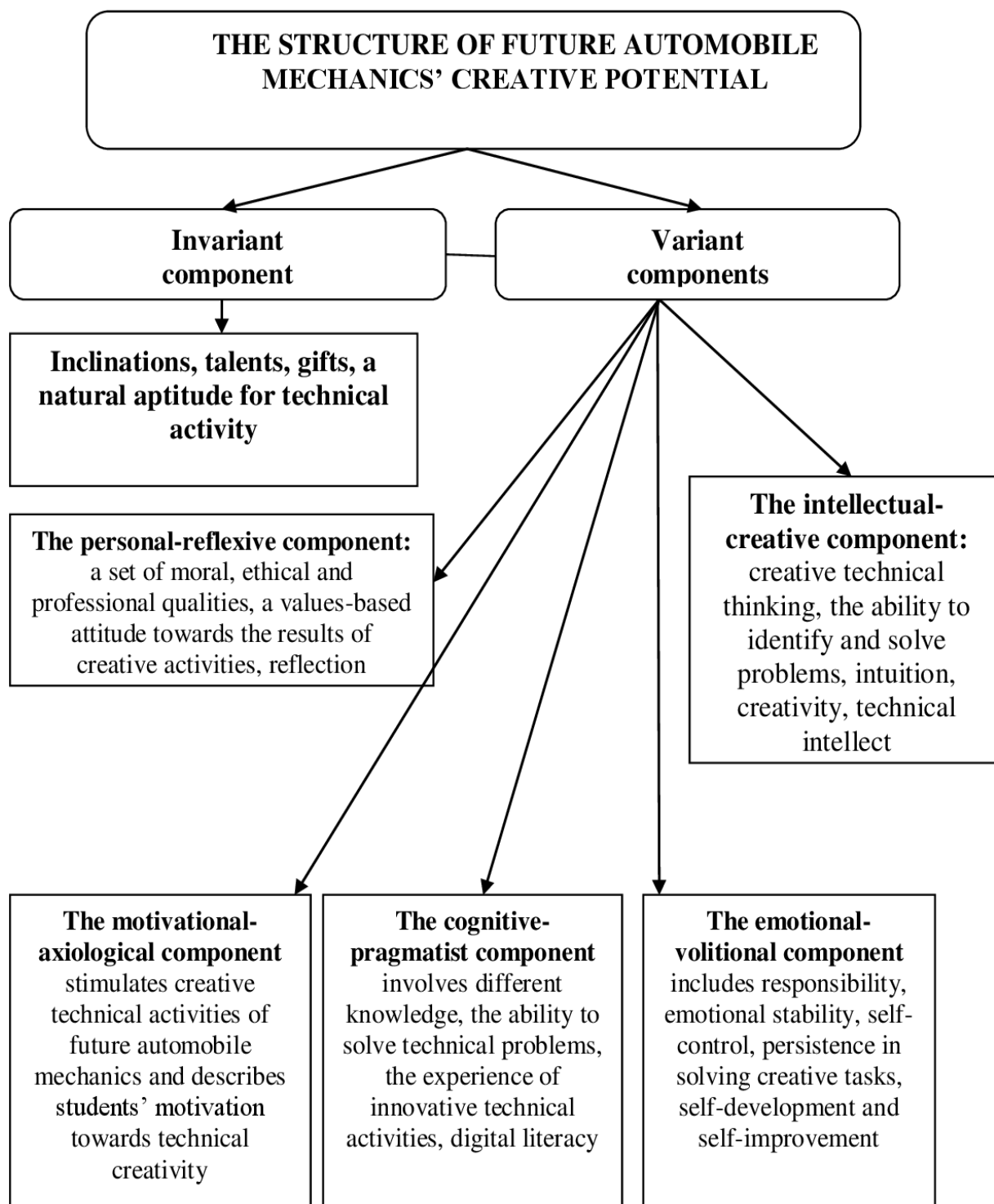


Fig. 2. The structure of future automobile mechanics' creative potential

The *cognitive-pragmatist* component shows how future specialists use methodological and technical knowledge to solve problems related to construction, repair, operation and maintenance of modern automobiles, other technical facilities; their ability to navigate in the information space, obtain scientific and technical information and use it accordingly; organization and time management skills; the ability to work in uncertain conditions. In general, this component includes the experience of innovative technical activities, including in the field of automobile transport, as the ability to solve technical problems effectively. It is responsible for a technological function.

The *emotional-volitional* component implies future specialists' ability to understand their emotional state while performing creative technical tasks; self-control in non-standard situations; diligence, thoughtfulness, responsibility; determination, self-development, self-improvement; manifestations of strong-willed efforts when solving technical problems; positive emotional state associated with the effectiveness of creative technical activities; persistence in overcoming difficulties; acceptance of mistakes; ability to deal with negative results adequately.

The *personal-reflexive* component represents a set of moral, ethical and professional qualities

(honesty and decency, modesty, diligence, kindness, integrity; strong physical health; technical intellect; accurate measurement by eye; quick reaction; ecological culture), as well as the ability to reflect on technical activities, conduct self-analysis and self-assessment of one's actions. In general, this component reflects a values-based attitude of future automobile mechanics towards the process and results of creative activity.

Importantly, the mentioned structural components of future automobile mechanics' creative potential are quite conditional: they are closely interconnected and combined into a single integrated construct (see Fig. 2).

Conclusions. The concept of future automobile mechanics' creative potential has been defined as an integrative characteristic that contributes to the success of one's professional activities. It is proposed to consider this phenomenon as a synthesis of invariant and variant components. It is shown that this complex personal construct combines motivational-axiological, intellectual-creative, cognitive-pragmatist, emotional-volitional and personal-reflexive components. Further research should aim to justify effective pedagogical conditions for developing creative potential in future automobile mechanics in colleges.

List of references

- Андреевская, Л.А., 2014. Междисциплинарный дидактический ресурс общепрофессиональных дисциплин в модели формирования творческого потенциала студента технического ВУЗа. *Теория и практика общественного развития. Сер. Педагогические науки*, 11, с.74-79.
- Бегидова, С.Н. та Липилина, Е. Ю., 2013. Творческий потенциал личности будущего инженера. *Вестник университета*, 11, с. 136-139.
- Біла, І. М., 2014. *Психологія дитячої творчості*. Київ.: Фенікс.
- Білодід, І. К. ред., 1973. *Словник української мови: у 11 т. Т.4* Київ : Наукова думка.
- Великий тлумачний словник української мови*, 2005. Харків: Фоліо.
- Глотова, Г.В., 2005. *Развитие творческого потенциала будущих инженеров в вузах США и Западной Европы*. Кандидат наук. Казанский государственный технологический университет.
- Глуховская, Е. А., 1997. *Развитие творческого потенциала старшего школьника в учебной деятельности*. Кандидат наук. Оренбургский государственный педагогический университет.
- Давлетшин, М.Г., 1971. *Психология технических способностей школьников*. Ташкент: ФАН.
- Дьоміна, Ю.В., 2011. Творчий потенціал особистості майбутнього викладача. *Проблеми інженерно-педагогічної освіти*, 32/33.
- Евинзон, С.Р., 1988. *Философско-социологический анализ творческого потенциала ученых*. Кандидат наук. ГОУ ВПО «Иркутский государственный педагогический университет».
- Костенко, Т.В., 2020. Творчий потенціал студентів: зміст та структура В: *The 4 th International scientific and practical conference: Eurasian scientific congress* (April 19-21, 2020). Barca Academy Publishing, Barcelona, Spain, pp. 213-219.

Кошук, О. Б., 2005. *Методика формування технічних здібностей майбутніх інженерів-аграрників у процесі вивчення курсу «Сільськогосподарські машини»*. Кандидат наук. Київський національний аграрний університет.

Кравчук, П.Ф., 1992. *Формирование творческого потенциала личности в системе высшего образования*. Доктор наук. Московский педагогический государственный университет.

Кузьмина, Н.В. 1995. Творческий потенциал специалиста. Акмеологические проблемы развития. *Гуманизация образования*, 1, с. 41-53.

Кулюткин, Ю.Н., 2001. *Изменяющийся мир и проблема развития творческого потенциала личности. Ценностно-смысловой анализ*. СПб.: СПбГУПМ.

Моляко, В. О. ред., 2008. *Психологічне дослідження творчого потенціалу особистості*: монографія. Київ: Педагогічна думка.

Моляко, В.О. та Музика, О.Л. ред., 2006. *Здібності, творчість, обдарованість: теорія, методика, результати досліджень*. Житомир: Вид-во Рута.

Мурашко, І. В., 2010. Розкриття поняття «особистісний потенціал» та його психологічної структури. *Актуальні проблеми психології: Психологічна теорія і технології навчання*, [online] 8, с. 196-205. Доступно: <http://newlearning.org.ua/sites/default/files/praci/2010_7/st18.pdf> [Дата звернення 26 Травень 2020].

Пасько, Я.І., Білецький, В.В., Савенкова, М.Є. та Бурега В.В. ред., 2004. *Логіка* : навчально-методичний посібник. Донецьк: Дон ДДУ.

Попова, О.П., 2009. *Розвиток творчого потенціалу майбутнього інженера в процесі професійної підготовки у вищому технічному навчальному закладі*. Кандидат наук. Класичний приватний університет

Посталюк, Н. Ю., 1989. *Творческий стиль деятельности: педагогический аспект*. Казань: Изд-во Казанского университета.

Соснин, Н.В., 2009. Дизайн как основа компетентностной модели инженерного образования. *Высшее образование в России*, 12, с. 20-26.

Стаднійчук, І., 2019. Методичні засади формування професійної компетентності майбутніх техніків-електриків в аграрних коледжах. *Науковий вісник Інституту професійно-технічної освіти НАПН України. Професійна педагогіка*, 2 (19), с. 4-10. doi: <https://doi.org/10.32835/2223-5752.2019.19.4-10>

Тарара, А.М., 2014. *Технічна творчість учнів основної школи у процесі проектної і технологічної діяльності*: навчально-методичний посібник. Київ : Педагогічна думка.

Тітова, О. А., 2019. *Педагогічна система розвитку творчого потенціалу майбутніх інженерів у аграрних університетах: теоретичне обґрунтування та методичне забезпечення* : монографія. Мелітополь : ФОП Однорог Т.В.

Череповська, Н. І., 2006. Виявлення та стимуляція розвитку творчого потенціалу дітей. *Обдарована дитина: Науково-практичний освітньо-популярний журнал для педагогів, батьків та дітей*, 1, с.18-22.

Amabile, T. M., 2012. Componential Theory of Creativity. *Harvard Business School Working Paper*, [online] 12-096. Available at: <<http://hbswk.hbs.edu/>> [Accessed 26 October 2020].

Hinton, V.L., 1970. Personality Variables and Creative Potential. *The Journal of Creative Behavior*, 4 (3), pp. 210-217.

Pereira, L. Q., 1999. Divergent thinking and the design process. *International Conference on Design and Technology Educational Research and Curriculum Development Conference Book*, pp. 224-229.

Plucker, J., Beghetto, R. A. and Dow, G., 2004. Why isn't creativity more important to educational psychologists? Potential, pitfalls, and future directions in creativity research. *Educational Psychologist*, 39, pp. 83-96.

Translated & Transliterated

Andrievskaya, L.A., 2014. Mezhdistsiplinarnyyi didakticheskiy resurs obshcheprofessionalnyih distsiplin v modeli formirovaniya tvorcheskogo potentsiala studenta tehniceskogo VUZa [Interdisciplinary didactic resource of general professional disciplines in the model of forming the creative potential of a student of a technical university]. *Teoriya i praktika obshchestvennogo razvitiya. Ser. Pedagogicheskie nauki [Theory and Practice of Public Development]*, 11, s.74-79, [in Russian].

- Begidova, S.N. ta Lipilina, E. Yu., 2013. Tvorcheskyy potentsial lichnosti buduschego inzhenera [The creative potential of the personality of the future engineer]. *Vestnik universiteta [University Bulletin]*, 11, s. 136-139, [in Russian].
- Bila, I. M., 2014. *Psykhologhiia dytiachoi tvorchosti [Psychology of children's creativity]*. Kyiv: Feniks, [in Ukrainian].
- Bilodid, I. K. red., 1973. *Slovnyk ukrainskoi movy [Dictionary of the Ukrainian language]: u 11 t. T.4*. Kyiv: Naukova dumka [Scientific Thought], [in Ukrainian].
- Velykyi tлумachnyi slovnyk ukrainskoi movy [Large explanatory dictionary of the Ukrainian language]*, 2005. Kharkiv: Folio, [in Ukrainian].
- Glотова, G.V., 2005. *Razvitie tvorcheskogo potentsiala buduschih inzhenerov v vuzah SShA i Zapadnoy Evropy [Development of the creative potential of future engineers in universities in the USA and Western Europe]*. Kandidat nauk. Kazanskiy gosudarstvennyy tehnologicheskyy universitet [Kazan State Technological University], [in Russian].
- Gluhovskaya, E. A., 1997. *Razvitie tvorcheskogo potentsiala starshogo shkolnika v uchebnoy deyatel'nosti [Development of the creative potential of a senior pupil in educational activities]*. Kandidat nauk. Orenburgskiy gosudarstvennyy pedagogicheskyy universitet [Orenburg State Pedagogical University], [in Russian].
- Davletshin, M.G., 1971. *Psihologiya tehnikeskikh sposobnostey shkolnikov [Psychology of technical abilities of schoolchildren]*. Tashkent: FAN, [in Russian].
- Domina, Yu. V., 2011. Tvorchyy potentsial osobystosti maibutnoho vykladacha [Creative potential of the future teacher's personality]. *Problemy inzhenerno-pedahohichnoi osvity [Problems of engineering and pedagogical education]*, 32/33, [in Ukrainian].
- Evinzon, S.R., 1988. *Filosofsko-sotsiologicheskyy analiz tvorcheskogo potentsiala uchenykh [Philosophical and sociological analysis of the creative potential of scientists]*. Kandidat nauk. GOU VPO «Irkutskiy gosudarstvennyy pedagogicheskyy universitet» [Irkutsk State Pedagogical University], [in Russian].
- Kostenko, T.V., 2020. Tvorchyy potentsial studentiv: zmist ta struktura [Creative potential of students: content and structure] V: *The 4 th International scientific and practical conference: Eurasian scientific congress* (April 19-21, 2020). Barca Academy Publishing, Barcelona, Spain, pp.213-219, [in Ukrainian].
- Koshuk, O. B., 2005. *Metodyka formuvannia tekhnichnykh zdibnostei maibutnykh inzheneriv-ahraryiv u protsesi vyvchennia kursu «Silskohospodarski mashyny» [Methods of forming the technical abilities of future agricultural engineers in the process of studying the course "Agricultural Machinery"]*. Kandydat nauk. Kyivskyy natsionalnyi ahraryivnyi universytet [Kyiv National Agricultural University], [in Ukrainian].
- Kravchuk, P.F., 1992. *Formirovanie tvorcheskogo potentsiala lichnosti v sisteme vysshego obrazovaniya [Formation of the creative potential of the individual in the higher education system]*. Doktor nauk. Moskovskiy pedagogicheskyy gosudarstvennyy universitet [Moscow Pedagogical State University], [in Russian].
- Kuzmina, N.V. 1995. Tvorcheskyy potentsial spetsialista. Akmeologicheskie problemy razvitiya [The creative potential of a specialist. Acmeological problems of development]. *Gumanizatsiya obrazovaniya [Humanization of education]*, 1, s. 41-53, [in Russian].
- Kulyutkin, Yu.N., 2001. *Izmenyayushchysya mir i problema razvitiya tvorcheskogo potentsiala lichnosti. Tsennostno-smyslovoy analiz [The changing world and the problem of developing the creative potential of the individual. Value-semantic analysis]*. SPb.: SPbGUPM, [in Russian].
- Moliako, V. O. red., 2008. *Psykhologichne doslidzhennia tvorchoho potentsialu osobystosti: monohrafiia [Psychological study of the creative potential of the individual]*. Kyiv: Pedahohichna dumka [Pedagogical Thought], [in Ukrainian].
- Moliako, V.O. ta Muzyka, O.L. red., 2006. *Zdibnosti, tvorchist, obdarovanist: teoriia, metodyka, rezultaty doslidzhen [Abilities, creativity, talent: theory, methods, research results]*. Zhytomyr: Vyd-vo Ruta, [in Ukrainian].
- Murashko, I. V., 2010. Rozkryttia poniattia «osobystisnyi potentsial» ta yoho psykhologichnoi struktury [Disclosure of the concept of "personal potential" and its psychological structure]. *Aktualni problemy psykhologii: Psykhologichna teoriia i tekhnologii navchannia [Current problems of psychology: Psychological theory and learning technologies]*, [online] 8, s. 196-205. Dostupno:

<http://newlearning.org.ua/sites/default/files/praci/2010_7/st18.pdf> [Data zvernennia 26 Traven 2020], [in Ukrainian].

Pasko, Ya.I., Biletskyi, V.V., Savenkova, M.Ie. ta Bureha V.V., red. 2004. *Lohika [Logic] : navchalno-metodychnyi posibnyk/* Donetsk: Don DDU, [in Ukrainian].

Popova, O.P., 2009. *Rozvytok tvorchoho potentsialu maibutnoho inzhenera v protsesi profesiinoi pidhotovky u vyshchomu tekhnichnomu navchalnomu zakladi* [Development of creative potential of the future engineer in the process of professional training in a higher technical educational institution]. Kandydat nauk. Klasychnyi pryvatnyi universytet [Classic Private University], [in Ukrainian].

Postaliuk, N. Yu., 1989. *Tvorcheskyi styl deiatelnosti* [Creative style of activity]. *Pedahohycheskyi aspekt* [Pedagogical aspect], s. 49-50, [in Russian].

Postalyuk, N. Yu., 1989. *Tvorcheskiy stil deyatelnosti: pedagogicheskiy aspekt* [Creative style of activity: pedagogical aspect]. Kazan: Izd-vo Kazanskogo universiteta,

Sosnin, N.V., 2009. *Dizayn kak osnova kompetentnostnoy modeli inzhenerenogo obrazovaniya* [Design as the basis of the competence model of engineering education]. *Vyisshee obrazovanie v Rossii* [Higher education in Russia], 12, s. 20-26, [in Russian].

Stadnychuk, I., 2019. *Metodychni zasady formuvannya profesiynoyi kompetentnosti maybutnikh tekhniv-elektrykiv v ahrarnykh koledzhakh* [Methodical bases of professional competence formation of future electrical technicians in agricultural colleges]. *Naukovyy visnyk Instytutu profesiyno-tekhnichnoyi osvity NAPN Ukrayiny. Profesiyna pedahohika* [Scientific Bulletin of the Institute of Vocational Education of the National Academy of Pedagogical Sciences of Ukraine. Professional Pedagogy], 2 (19), s. 4-10, doi: <https://doi.org/10.32835/2223-5752.2019.19.4-10>, [in Ukrainian].

Tarara, A.M., 2014. *Tekhnichna tvorchist uchniv osnovnoi shkoly u protsesi proektnoi i tekhnolohichnoi diialnosti* [Technical creativity of primary school students in the process of design and technological activities]: *navchalno-metodychnyi posibnyk*. Kyiv : Pedahohichna dumka, [in Ukrainian].

Titova, O. A., 2019. *Pedahohichna systema rozvytku tvorchoho potentsialu maibutnikh inzheneriv u ahrarnykh universytetakh: teoretychne obgruntuvannya ta metodychne zabezpechennia* [Pedagogical system of creative potential development of future engineers in agricultural universities: theoretical substantiation and methodical support]: monohrafiia. Melitopol : FOP Odnoroh T.V., [in Ukrainian].

Cherepovska, N. I., 2006. *Vyavlennia ta stymuliatsiia rozvytku tvorchoho potentsialu ditei* [Identifying and stimulating the development of children's creative potential]. *Obdarovana dytyna: Naukovo-praktychnyi osvitho-populiarnyi zhurnal dlia pedahohiv, batkiv ta ditei* [Gifted child: Scientific and practical educational and popular magazine for teachers, parents and children], 1, s. 18-22, [in Ukrainian].

Amabile, T. M., 2012. *Componential Theory of Creativity. Harvard Business School Working Paper*. [online] 12-096. Available at: <<http://hbswk.hbs.edu/>> [Accessed 26 October 2020], [in English].

Hinton, B.L., 1970. *Personality Variables and Creative Potential. The Journal of Creative Behavior*, 4 (3), pp. 210-217, [in English].

Pereira, L. Q., 1999. *Divergent thinking and the design process. International Conference on Design and Technology Educational Research and Curriculum Development Conference Book*, pp. 224-229, [in English].

Plucker, J., Beghetto, R. A. and Dow, G., 2004. *Why isn't creativity more important to educational psychologists? Potential, pitfalls, and future directions in creativity research. Educational Psychologist*, 39, pp. 83-96, [in English].

УДК 377.3:629.31-049.32:[37.015.31:159.954]

ТВОРЧИЙ ПОТЕНЦІАЛ МАЙБУТНЬОГО МЕХАНІКА З ОБСЛУГОВУВАННЯ ТА РЕМОНТУ АВТОМОБІЛІВ І ДВИГУНІВ

Володимир Годун¹

¹ аспірант Інституту професійно-технічної освіти НАПН України, м. Київ, Україна, <https://orcid.org/0000-0002-1629-1143>, e-mail: cbbg@ukr.net

Реферат:

Актуальність дослідження визначається суперечністю між зростаючою потребою сучасних сервісних центрів і ремонтних автопідприємств у висококваліфікованих і креативних інженерно-технічних працівниках та неузгодженістю думок учених щодо визначення суті, змісту і структури творчого потенціалу майбутнього фахівця автотранспортної галузі, недосконалістю умов його формування й розвитку у коледжах.

Мета: уточнити дефініцію, конкретизувати зміст та обґрунтувати структуру творчого потенціалу майбутніх механіків з обслуговування та ремонту автомобілів і двигунів.

Методи: теоретичний аналіз наукових джерел – для з'ясування рівня дослідженості проблеми; порівняння – з метою вивчення наукових підходів до розв'язання проблеми; аналіз і синтез – задля визначення найближчої родової ознаки, суттєвих видових ознак досліджуваного феномена; систематизація – для обґрунтування його структурних компонентів.

Результати: уточнено дефініцію поняття «творчий потенціал майбутнього механіка з обслуговування та ремонту автомобілів і двигунів»; конкретизовано його зміст, обґрунтовано структуру та визначено базові характеристики.

Висновки: поняття «творчий потенціал майбутнього механіка з обслуговування та ремонту автомобілів і двигунів» – це інтегративна властивість особистості, що сприяє реалізації її успішної професійної діяльності; даний феномен є складним особистісним конструктом з певним набором компонентів (мотиваційно-ціннісний, інтелектуально-креативний, когнітивно-діяльнісний, емоційно-вольовий та особистісно-рефлексивний) та базових характеристик (синтез творчих і технічних здібностей; схильність до творчої технічної діяльності; ресурсна можливість і прагнення знаходити оригінальні рішення розв'язання проблем в галузі експлуатації й ремонту, відновлення чи контролю якості об'єктів автомобільного транспорту; здатність системно поєднувати методологічні, загальнотеоретичні, політехнічні знання; наявність певних особистісно-професійних якостей).

Ключові слова: *творчий потенціал; майбутній механік з обслуговування та ремонту автомобілів і двигунів; зміст та структура творчого потенціалу.*

Received: 12 June 2021

Accept: 30 June 2021