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Development of national self-awareness in students of life sciences universities through non-formal education

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Abstract. The purpose of the study was to substantiate the pedagogical foundations and outline effective forms and methods of non-formal education aimed at developing the national identity of students of life sciences universities, considering contemporary challenges, intercultural context, and specific features of professional training of future specialists in agriculture and natural sciences. The authors substantiated the relevance of the subject matter in the context of contemporary socio-political challenges, which require young people to possess a high level of national self-awareness, civic maturity, and an active life stance. Key stages in the development of non-formal education as a recent phenomenon were identified (concept formation, institutionalisation, and the present state). The paper emphasised that in the context of modernity, non-formal education was perceived as a flexible, practice-oriented form of acquiring knowledge, skills, and competencies. It had an equally significant impact on shaping the identity of a citizen and a member of society as formal education does – especially in terms of the development and reevaluation of values, social communication skills, and national consciousness. Special attention was given to the opportunities and potential of non-formal education as an effective means of patriotic upbringing and the development of national

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self-awareness, the preservation of national identity, and the establishment of an active civic stance. Based on the analysis of scientific literature, the concept of “non-formal education” was examined, the main characteristics of this phenomenon were revealed, and its potential was outlined. Contemporary approaches to organising educational spaces were identified, in which academic training was combined with elements of cultural and educational activities, student initiatives, and volunteer projects. Effective forms of non-formal educational influence were also highlighted (project-based activities, cultural and artistic events, social initiatives, etc.). The results of the study demonstrated that the systematic use of non-formal education methods contributed to a deeper awareness among students of their belonging to the Ukrainian people, the development of value orientations, and readiness for social activity in the face of contemporary societal challenges. The practical value of the study consists in the identification of effective forms and methods of non-formal education that could be implemented in the educational process of universities to develop national identity and civic engagement of students

Keywords: patriotic identity; higher education students; extracurricular activities; civic education; value orientations; cultural heritage; youth initiatives

Introduction

The development of national identity is one of the most important tasks of modern education, especially in the context of globalisation, where the issue of preserving national identity becomes particularly relevant. A distinctive feature of the establishment of the Ukrainian nation, consciousness, and identity lies in the prolonged and complex historical period without a unified state, the dispersion of Ukrainians across the world, and persistent threats to Ukraine's sovereignty and independence from neighbouring forces eager to claim what is not theirs. This has created an urgent need to establish a strong national context, as national self-identification is the factor that enables Ukrainians to perceive themselves as part of a unified people, bound together by a common history, culture, state language, and the idea of freedom. It is this identity that nurtures patriotism, civic responsibility, readiness for self-sacrifice, and active participation in the defence of the state. In times of external aggression, strengthening national consciousness becomes a vital prerequisite for the preservation of statehood and the further development of Ukrainian society.

Thus, in the realities of transformational social changes, the development of national identity is not only a pedagogical or cultural task,

but also a strategically important component of Ukraine's national security. Universities play a crucial role in this process, as students not only acquire professional knowledge but also develop their cultural and national consciousness. One of the most effective tools in this regard is non-formal education – a flexible, multi-format approach focused on personal development. It offers broad opportunities for fostering patriotism, national identity, civic engagement, and spiritual culture. In this context, it is important to explore how non-formal educational practices can contribute to the development of nationally conscious individuals within higher education, particularly in the agricultural and life sciences sectors. Life sciences universities, in particular, have a unique opportunity to integrate elements of national consciousness into the educational process by employing methods of non-formal education such as thematic discussions, cultural and educational events, volunteer initiatives, and active learning formats. These methods not only enable students to gain a deeper understanding of their nation but also encourage them to actively participate in the preservation and development of national heritage.

The issue of developing national self-awareness is reflected in legislative acts and regulatory

documents, including the Concept of National-Patriotic Education in the Education System of Ukraine (2022), and has attracted close attention from numerous researchers in pedagogy, sociology, psychology, and cultural studies. Studies examined both the theoretical foundations of national identity and practical aspects of its development among youth. Ukrainian scholars emphasised the importance of fostering patriotism, national values, and respect for history, traditions, and language as key components of self-awareness. Furthermore, researchers highlighted the crucial role of the educational process as the primary tool for shaping national consciousness, especially amid contemporary challenges such as military aggression, information warfare, and cultural globalisation. They underscored the effectiveness of non-formal education, volunteerism, student initiatives, and intercultural dialogue as essential elements in the process of national self-affirmation among youth. In the study by I. Pakhomov (2023), particular attention was drawn to the idea that national education should contribute to the development of future citizens of Ukraine as part of the European community, capable of “embracing cultural diversity” within society. A phased characterisation of the system for developing national self-awareness among student youth through civic engagement was presented in the papers by O. Kin & A. Denysenko (2021). They, among other findings, identified effective pedagogical conditions for fostering national self-awareness in learners, including the student environment as a conduit for national consciousness ideas, involving students in various forms of civic activity, and encouraging continuous development of their national self-awareness.

The determining factors that define the priority areas of national education, including the development of national self-awareness, were revealed in a scientific study by N. Khamska *et al.* (2023). The researchers focused on the development of such characteristics in students as patriotic self-awareness, national identity, national values, civic responsibility, effectiveness in preserving cultural heritage, language, history,

and protecting the national integrity of the state and its national interests. The specific features of identification processes during the ongoing war in Ukraine and the role of higher education institutions in shaping students' national consciousness were analysed in the research by L. Petrenko & R. Poddubny (2024). They proposed a range of measures to be organised within higher education institutions to effectively foster national consciousness among students, including deepening the study of Ukrainian history and culture within the educational process; developing a national-patriotic educational environment; and engaging students in national-patriotic events and volunteer activities. Thus, the paper confirmed the relevance of the problem of developing national identity and its diverse reflection in the research of scholars. The problem of developing national self-awareness among students of life sciences universities through non-formal education has not yet been the subject of dedicated study and warrants further investigation.

The purpose of this study was to analyse and systematise scientific approaches to defining the essence of national identity as a socio-psychological and pedagogical phenomenon; to identify the potential of non-formal education in the development of national values in students; to substantiate the pedagogical foundations, principles and content of the educational impact of extracurricular activities in the context of national and patriotic education of students of life sciences universities.

Materials and Methods

To organise the study of the stated problem, a set of general scientific and specific research methods was applied. Among the theoretical methods, the following were utilised: analysis and synthesis – for examining the conceptual and categorical framework of the study, particularly regarding the terms “non-formal education,” “national identity,” and “patriotic upbringing”; and for synthesising the obtained data to formulate a holistic vision of the phenomenon under investigation.

The methodological basis of the study also involved elements of the axiological approach, which allowed focusing on the value-oriented dimension of national identity development through non-formal education. Comparison and generalisation were used to analyse and systematise scientific literature, educational legislation, regulatory documents, and to compare scientific viewpoints on the essence, role, and pedagogical potential of non-formal education in the development of national consciousness. Sociological methods were applied to complement the theoretical basis with empirical observations. In particular, content analysis was conducted on public discourse presented in social networks, educational blogs, and online platforms such as Prometheus and EdEra. These platforms provided valuable insights into current practices, trends, and tools of non-formal education used in Ukrainian universities. Special attention was paid to student reflections, feedback from educators, and descriptions of extracurricular initiatives with a national-patriotic focus. The empirical component of the study was supported by observation and descriptive analysis of student participation in educational and civic initiatives conducted within the framework of university-based non-formal education.

Additionally, elements of pedagogical modelling were applied to determine potential formats and methods of non-formal education suitable for implementation in life sciences universities. These included: thematic quests, educational forums, student volunteer and mentoring projects, debates, artistic and cultural events, and participation in all-Ukrainian campaigns and commemorative activities. The research materials comprised scientific articles, monographs, dissertation studies, legislative and strategic documents, and digital educational content reflecting the practical implementation of non-formal educational strategies in higher education institutions. The combination of conceptual analysis and content analysis ensured a multi-dimensional, interdisciplinary approach, contributing to the comprehensiveness and reliability of the research findings.

Results and Discussion

The development of national self-awareness among students of life sciences universities through non-formal education is a process of purposeful influence on the worldview orientations of the individual through educational activities conducted outside formalised curricula. It is aimed at the awareness of one's own ethnocultural identity, historical and cultural heritage, language, traditions, and the development of an active civic stance. Its goal is the deliberate fostering in youth of an understanding of their national identity, cultural heritage, historical memory, and civic position through educational activities that take place beyond the formal education system. These activities are intended to create conditions for the emotional experience of national values, the comprehension of the role of each citizen in society, and to promote the development of patriotic consciousness.

A review of the literature on the development of national identity among students of life sciences through informal education indicates a growing interest among scholars in this issue. The importance of implementing a culturological approach in the process of shaping the personality of future specialists was addressed by I. Zaitseva (2018). The study focused on the specific features of teaching educational components with a culturological orientation, which fosters respectful attitudes toward the spiritual heritage of the Ukrainian people and promotes the development of spirituality, physical perfection, moral, artistic-aesthetic, legal, labour, and environmental culture – an essential factor in building an independent Ukrainian state and developing national self-awareness in students.

In the study on the specifics of developing national consciousness among students specialising in “Physical Culture and Sports,” conducted by V. Kindrat *et al.* (2019), it was demonstrated that the development of national consciousness in students during their education should occur through a close, integrated relationship between acquiring knowledge and the moral development of the individual. The effectiveness of this process

largely depends on the substantive content of educational programmes, the rational organisation of both academic and extracurricular activities, and the spiritual level, education, and culture of the instructor, along with their ability to integrate educational material with national upbringing tasks to comprehensively influence students' awareness, emotions, and behaviour. In the study by O. Luchaninova & S. Rashidova (2024), the effectiveness of national-patriotic education as a systematic and purposeful activity was examined, especially in the context of wartime. The researcher emphasised the importance of developing patriotic consciousness, loyalty, and love for the homeland among the younger generation. The role of non-formal education in shaping the national identity and civic awareness of students was also highlighted. Methodical aspects of developing national self-awareness in the younger generation through Ukrainian musical art were discussed by L. Vasylevska-Skupa *et al.* (2022), who promoted the development of the student's personality by engaging with the best examples of Ukrainian and world art (attending concerts, exhibitions, master classes, excursions, museums, etc.).

The possibilities of non-formal education as a means of personal development were explored by S. Hanaba (2024), who distinguished between non-formal and informal education and stressed that "in the contemporary changing world, the cognitive and informational needs of various social groups cannot be met solely within the traditional education system". Various formats of non-formal education (trainings, workshops, project activities, interest clubs, volunteering, etc.), according to V. Shynkaruk *et al.* (2025), play a leading role in the development of key leadership qualities, promoting the development of independence, initiative, responsible attitude towards work, communication skills, ability to work effectively in a team, and critical thinking. The problem of developing national self-awareness of students through non-formal education has not been the subject of a separate study. The analysed studies emphasise the importance of non-formal education in the

development of national self-awareness among students of life sciences universities (Shynkarenko & Miroshnychenko, 2021). They demonstrate that the combination of a cultural approach, patriotic education, and personal development contributes to a deeper awareness by students of their national identity and role in society.

The history of non-formal education originated in the mid-20th century as a response to the limitations of the conventional (formal) educational system, which did not always meet the needs of rapidly changing societies, especially in developing countries. Key stages of the development of non-formal education as a contemporary phenomenon are presented in the Figure 1.



Figure 1. Stages of the development of non-formal education as a contemporary phenomenon

Source: created by the authors based on I. Akimenko (2024)

Non-formal education is perceived as a flexible, practice-oriented form of acquiring knowledge that often has an impact no less significant than formal education, especially in shaping values, skills, and national consciousness. To provide a detailed explanation of the key concept of “non-formal education”, legislative acts and the work of researchers who have investigated this phenomenon were analysed. The Law of Ukraine No. 38-39 “On Education” (2017) defines non-formal education as education “that is generally acquired through educational programmes and does not imply the awarding of state-recognised educational qualifications at educational levels, but may result in the granting of professional and/or partial educational qualifications”.

Non-formal education as a distinct type of modern pedagogical systems is explored in the studies by foreign researchers and Ukrainian scholars. For instance, in the study by A. Zabolotna *et al.* (2024), non-formal education was defined as one of the “important forms of developing competencies acquired in formal education and developing new ones that significantly increase the competitiveness of specialists”. The main key tools of non-formal education, according to scholars, include trainings and seminars, volunteer projects, student participation in youth organisations and associations, so-called business incubators, expert master classes, conferences, and forums, among others. Non-formal education was defined by V. Shynkaruk *et al.* (2025) as a continuous cognitive development process aimed at “activating new knowledge, deepening the level of professional competence, and autodidactic activity characterised by the absence of strict regulations regarding the location, time limits, and organisational forms of learning,” emphasising that the integration of formal, non-formal, and informal learning should ensure effective education of the future.

Studying the socio-pedagogical conditions for the development of social competence in high

school students through informal education, researcher M. Fedoruts (2021) noted that informal education is any organised systematic educational activity of subjects that takes place outside the official education system and aims to provide selected groups of the population with selected types of education. The researcher emphasised that the advancement of informal education has become an important and natural factor in the development of democratic processes in the education sector in many industrialised countries around the world.

The opinion and scientific approach of T. Vasilyuk *et al.* (2024) are reasonable, revealing informal education as a pedagogical process that is mostly implemented outside of official educational institutions – in the workplace, in the activities of independent educational providers, or at home. Features of this form of education include the absence of a fixed learning schedule and flexible, unregulated use of educational resources. O. Shelever *et al.* (2023) investigating the role and significance of non-formal education during martial law in Ukraine, considered it is defining differential characteristic to be its institutional nature, which precludes the issuance of official state-recognised educational documents. The main generalised qualitative characteristics of non-formal education are presented in the Figure 2. The socio-pedagogical characteristics of non-formal education are defined by its role-related factors in society: free access to participation (regardless of status, gender, place of residence, nationality, age); differentiation of learning content depending on needs; interactivity and innovativeness of learning forms. Researcher E. Saveliev (2021) emphasised that formal education is losing its monopoly, as it does not provide a 100% guarantee of integration into the labour market. Informal education is one of the forces weakening this monopoly by offering alternative forms of learning and new content that help people to adapt to the constant transformations of society.

Voluntariness and flexibility
Non-formal education is a voluntary process that involves free choice of content, form and pace of learning
Activities outside formal institutions
This type of education is implemented in environments that do not have the status of official educational institutions – for example, in professional settings, clubs, circles, family
Focus on practical implementation and the development of life skills
Non-formal education is aimed not so much at acquiring knowledge as at developing practical skills, social, and civic competencies
Lack of rigid structure and regulated assessment system
Non-formal education does not have clear programmes, fixed levels, and formal assessment of knowledge, which makes it extremely adaptable to the needs of the individual
Significant role of motivation and self-education
Self-direction and intrinsic motivation are key factors the effectiveness of non-formal learning

Figure 2. Generalised qualitative characteristics of non-formal education

Source: created by the authors based on O. Shelever et al. (2023), I. Akimenko (2024), S. Hanaba (2024)

A qualitative analysis of existing definitions of non-formal education reveals ambiguity and contradictory interpretations among scholars. Researchers express diverse, and sometimes even mutually exclusive, views regarding the degree of organisation, structure, and effectiveness of this type of education. Meanwhile, the forms and methods of non-formal learning remain insufficiently addressed by the academic community. An important aspect of this contradiction is that, in the European context, the main focus is on the validation and official recognition of non-formal learning outcomes, whereas in Ukrainian pedagogical literature, the absence of certificates is still considered a defining feature of non-formal education. Thus, non-formal education is a type of educational activity carried out outside the official (formal) educational system, characterised by voluntary, flexible, often unstructured nature, aimed at the development of personal, social, civic, or professional competencies. Its main features include voluntary participation, flexibility of content and forms, orientation to participants' needs, learning through practical activities and experience, active interaction among participants, absence of official diplomas, but possible certification.

According to N. Pavlik & S. Kolyadenko (2023), non-formal education “as a sphere of

scientific knowledge is a promising area of contemporary socio-pedagogical research that will contribute to social and pedagogical transformations by introducing a new system of values, patterns, methods, and technologies into the education system”. Non-formal education plays a significant role in shaping the learner's personality because it: promotes comprehensive development, complementing academic learning and thus contributing to the development of soft skills, creative and critical thinking, emotional intelligence, and decision-making independence; fosters civic engagement, which is especially important in the context of our research topic. Participation in social projects, volunteer initiatives, youth and community movements contributes to the development of national identity and self-awareness, cultivating an active, conscious citizen and member of society; expands opportunities for self-realisation, as trainings, internships, workshops, mobility, and exchange programmes provide practical experience outside the formal education system; increases motivation for learning. Participation in non-formal activities stimulates self-education and develops intrinsic motivation for self-improvement; builds adaptability to change by fostering flexible thinking and the ability to engage in lifelong learning.

The methodology of organising non-formal education is revealed through a set of technologies, methods, and techniques of non-formal learning. N. Pavlik & S. Kolyadenko (2023), studying the theory and practice of youth non-formal education, emphasised that organisers of non-formal education prefer active and interactive forms and methods of learning. The development of informal education is promoted by international organisations such as UNICEF, UNESCO, the European Union, the Council of Europe and others. That is why informal education is more developed in Europe and is perceived by European employers on a par with formal education (Zhuravel & Rogozna, 2018).

As a flexible and dynamic system, non-formal education provides a wide range of forms of influence on the development of national consciousness among students of life sciences universities. In particular, effective forms of non-formal educational impact include:

- patriotic trainings and seminars (for example, the training “I am a Citizen of Ukraine”) contribute to the awareness of national belonging, the development of values, and civic responsibility;
- volunteer activities, such as assisting the military or internally displaced persons, promote the development of an active civic stance and patriotism. In the context of the full-scale invasion, volunteer work has become not only an expression of civic activity but also an effective means of shaping the national consciousness of students. Volunteering is not just support for the army or victims but also active participation in defending the nation's identity, values, and cultural heritage. Student youth have become drivers of volunteer initiatives. For instance, a student volunteer headquarters was established at the National University of Life and Environmental Sciences of Ukraine, coordinating over 300 participants; students and faculty members participate in organising and dispatching humanitarian aid to the front lines, setting up support centers for evacuees, and more (The team of the Senate..., 2023);
- cultural and historical excursions and trips to national landmarks (e.g., the Heroes of

Kruty Memorial, museums of the liberation movement) provide direct contact with history and cultural heritage, actualising national memory;

- project activities (“My Family in the History of Ukraine”, video interviews with veterans) develop research competencies and a deep personal understanding of national identity;
- cultural and artistic events, such as celebrating Vyshyvanka Day, organising Shevchenko evenings, and folk art exhibitions, promote the value-based comprehension of national culture;
- student debates and round tables (for example, debates on the topic “Being Ukrainian means...”) develop critical thinking, public speaking skills, and the development of one's own civic stance;
- club activities based on interests (Ukrainian film clubs, historical reenactment groups) create an informal environment where national consciousness is naturally strengthened;
- participation in online courses on Ukrainian history, culture, and politics (e.g., courses on Prometheus, EdEra platforms) allows students to broaden their national outlook in a convenient format.

Thus, the multifaceted forms of non-formal education allow for the integration of national-patriotic upbringing into the daily lives of students, deepening their awareness of their own national identity, social engagement, and value orientations.

Conclusions

Thus, it can be stated that in the context of socio-political transformation, military aggression, and global challenges, the issue of developing national identity among student youth is becoming especially relevant. Non-formal education plays a crucial role in this process, complementing traditional educational practices, expanding opportunities for youth self-realisation, and promoting the consolidation of national values. Numerous initiatives aimed at nurturing a conscious, patriotic citizen are being implemented at the National University of Life and Environmental Sciences of Ukraine (NULES).

Further research should focus on developing effective models that integrate civic education, cultural identity, and advanced educational technologies. The development of short-term programmes, trainings, and workshops aimed at fostering national-patriotic consciousness is particularly relevant. Additionally, comprehensive empirical research is needed to assess the impact of students' participation in non-formal education activities (volunteering, cultural initiatives, youth organisations, etc.) on the level of their national self-awareness. It is advisable to analyse the experience of European Union countries, which actively implement programmes for developing national identity through civic, intercultural, and non-formal education, with the

aim of adapting the best practices to Ukrainian realities. Promising areas also include investigating the potential of digital tools, online courses, blogs, YouTube channels, and patriotic projects on TikTok as environments that shape national consciousness among youth through non-formal learning.

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Conflict of Interest

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Формування національної самосвідомості студентів університетів наук про життя засобами неформальної освіти

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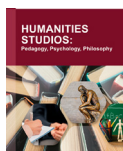
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Анотація. Метою статті було обґрунтувати педагогічні засади та окреслити ефективні форми й методи неформальної освіти, спрямовані на формування національної самосвідомості студентів університетів наук про життя, з урахуванням сучасних викликів, міжкультурного контексту й особливостей професійної підготовки майбутніх фахівців аграрного та природничого профілю. Автори обґрунтували актуальність теми в умовах сучасних суспільно-політичних викликів, які вимагали від молоді високого рівня національної самосвідомості, громадянської зрілості та активної життєвої позиції. Були визначені ключові етапи розвитку неформальної освіти як феномену сучасності (становлення концепції, інституціоналізація, сьогодення). Акцентовано увагу на тому, що в реаліях сьогодення неформальна освіта сприймалася як гнучка, практико-орієнтована форма здобуття знань, навичок, компетентностей і мала не менший вплив на формування особистості громадянина, члена суспільства, ніж формальна освіта, особливо якщо це стосувалося формування та переоцінки цінностей, навичок суспільної комунікації та національної свідомості. Особлива увага приділялася можливостям і потенціалу неформальної освіти як дієвого засобу патріотичного виховання та формування національної самосвідомості, збереження національної ідентичності та формування активної громадянської позиції. На основі аналізу наукових напрацювань проаналізовано зміст поняття «неформальна освіта», розкрито основні характеристики досліджуваного феномену та його можливості. Визначено сучасні підходи до організації освітнього простору, у якому поєднувалися академічна підготовка з елементами культурно-просвітницької діяльності, студентських ініціатив і волонтерських проєктів. Також визначено ефективні форми неформального освітнього впливу (проєктна діяльність, мистецько-культурні заходи, соціальні ініціативи тощо). Результати дослідження засвідчили, що системне використання засобів неформальної освіти сприяло глибшому усвідомленню студентами своєї приналежності до українського народу, розвитку ціннісних орієнтацій і готовності до соціальної активності в умовах викликів сучасного суспільства. Практична цінність статті полягала у визначенні ефективних форм і методів неформальної освіти, які можуть бути впроваджені в освітній процес університетів для розвитку національної самосвідомості та громадянської активності студентської молоді.

Ключові слова: патріотична ідентичність; здобувачі вищої школи; позааудиторне навчання; громадянське виховання; ціннісні орієнтації; культурна спадщина; молодіжні ініціативи



The system of organising career guidance for pedagogical specialities of life sciences universities

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Abstract. The aim of the article was to develop models (systems) for organising career guidance work for pedagogical specialities at life sciences universities. The article presented information on the creation and verification of the effectiveness of a career guidance system for pedagogical specialities at agricultural and environmental universities, which was regarded as a holistic unity built on scientific and organisational foundations with structured components that were closely interrelated and interdependent, forming a corresponding functional integrity. It was established that the developed system had specific features, as it ensured the selection of applicants for pedagogical specialities at life sciences universities, whose task was to train specialists in bioeconomic professions of the “human-nature” type. It was emphasised that the model included target, methodological, content, operational, result-oriented, and control-corrective components, which made it possible to achieve synergy between objectives, tasks, approaches, principles, content, pedagogical conditions, forms, methods, tools, and actions of the subjects involved (teachers, parents, career advisers from graduating departments, students, employers) within a structured, algorithmic collaboration. The model was based on systemic, competency-based, learner-centred, and axiological approaches and was implemented algorithmically with step-by-step application of forms, methods, techniques, tools, and activities in line with the component-based structure of personality. It was analysed that the implemented algorithm involved the use of verbal methods, methods for activating the need to choose a pedagogical profession at life sciences universities, testing of professional skills and abilities, and reflective methods for professional self-determination. The system included mechanisms for monitoring its effectiveness, which made it possible to track the dynamics of enrolment and indicators of promotional activity by educational process stakeholders. This demonstrated its effectiveness, as evidenced

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by the dynamics of submitted applications and actual enrolments from 2020 to 2024, despite objective complicating factors such as the COVID-19 pandemic, war, and significant youth migration abroad. It was noted that the effectiveness of the system for organising career guidance work for pedagogical specialities at life sciences universities depended on the provision of specific pedagogical conditions and adherence by career promotion agents to the corresponding methodological recommendations

Keywords: model of career guidance system; career orientation tools; diagnostics of professional orientation among applicants to pedagogical programmes; participants in the career guidance process; career choice advisers; mechanisms for monitoring quantitative indicators of enrolment in pedagogical specialities

Introduction

The issue of selection for higher education institutions, both in the international and Ukrainian context, was significant in terms of societal development, especially during a period of dynamic progress in technotronic civilisation, with the introduction of artificial intelligence, the integration of robotics, neural networks, cloud services, and machine and programmable learning technologies into all spheres of life. In particular, M. Ford (2015) emphasised that the world was rapidly changing under the influence of technologies that rendered humans redundant, especially in performing routine operations that algorithms could easily carry out. The futurist researcher M. Ball (2022) examined how virtual spaces and augmented reality technologies would influence education, how social relationships, the economy, education, professional self-determination, and culture as a whole would change. The author stressed that metareality would expand human capabilities while also posing new challenges for humanity concerning professional reorientation.

Interesting ideas regarding the relevance of career guidance work to be conducted on new foundations were proposed by P. Diamandis & S. Kotler (2020), who emphasised the rapid development of virtual reality technologies, artificial intelligence, cryptocurrencies, digital biology, the creation of symbionts, and pointed out that the range of professions and positions would fundamentally change, both globally and locally. The authors predicted that many professions

would undergo transformation due to automation and the introduction of artificial intelligence. Routine tasks would gradually be performed by machines, while human work would focus on creativity, management, and emotional intelligence. It was important to orient people now towards acquiring skills that would be relevant in the near future. In the future, there would be increasing demand for specialists in the social sciences, psychologists, wordsmiths, ethical consultants, and skills in interaction and creative thinking would be in demand. Professions related to education would remain relevant, as learning and retraining would become an integral part of life. These ideas were reflected in the monograph by Ukrainian scholar O. Polishchuk (2022), which developed theoretical and methodological materials that could be used by educational stakeholders to foster senior pupils' readiness to choose a profession – as this would determine the economic development of the country in the digital technology era.

The particular interest in career guidance issues was also confirmed by the research of scholars. For instance, T. Pham *et al.* (2024) analysed 383 publications on the topic and established that, from the second half of the 20th century to the present day, there had been a significant increase in attention to professional choice, ensuring social justice in the career decision-making process, as well as social support and the participation of mentors in career orientation.

Ukrainian researcher S. Koda (2020) examined how changes in education influenced the process of choosing a profession. The author analysed new approaches that helped pupils consciously choose the professional path – particularly the integration of digital technologies, project-based learning, and the development of soft skills. Indian scholars G.A. Herath *et al.* (2024) emphasised the importance of restructuring career guidance work and using the achievements of the digital knowledge society in professional promotion and the professional self-determination of the younger generation. The scholars drew attention to the widespread use of computer tools, artificial intelligence systems, online assessment platforms, adaptive learning systems, and mobile applications that contributed to effective career counselling.

Given this, the issue of defining the place and role of humans in the production chains of the future, and ensuring proper career selection in accordance with aptitudes and talents, became increasingly important. It was thus quite reasonable to set tasks for restructuring career guidance work toward the positions and professions that would be in demand in the near future. For the rational redistribution of the labour force, especially under the Ukrainian circumstances marked by the Russian-Ukrainian war, the extermination of the Ukrainian people, mass emigration (8 million citizens left the country), and losses in the labour force and human capital, the creation of a career guidance system – particularly for pedagogical specialities at life sciences universities – gained increasing significance. Two vital professions – the teacher and the farmer – were combined in this objective. Teachers designed society's development for generations ahead, while agrarian farmers guaranteed food security, economic survival, and the country's defence capability during a period of existential war.

The aim of this research was to justify and design a model for organising career guidance work aimed at attracting entrants to pedagogical specialities at life sciences universities. Within this context, the following objectives were important: to model the career guidance system taking

into account its key components (target, content, methodological, operational, and control-corrective components); to highlight the methodological approaches and content of career guidance work for pedagogical specialities at life sciences universities; to develop an algorithm for applying forms, methods, techniques, and tools in accordance with the stages of implementing career guidance work for pedagogical specialities at life sciences universities.

Literature Review

Researchers who paid considerable attention to the organisation of career guidance work and published the findings in monographs, scientific articles, textbooks, or manuals were noted. For example, scholars from the Catholic University of Portugal, V. Khurumova & J. Pinto (2023), highlighted that career services should have been a priority for higher education institutions and that it was necessary to establish departments dedicated to the development, implementation, and evaluation of academic and career plans and decisions of prospective applicants. The authors stated that most applicants and students were open to using online consultations, but also stressed the importance of direct, "live" contact between the applicant and the career consultant. In the career guidance system, especially in choosing modes of consultation, it was essential to consider that the level of stress resilience and psychological capital affected the effectiveness of online counselling, since these characteristics helped individuals better adapt to changes and challenges related to career development (Pordelan & Hosseinian, 2021).

Polish scholar R. Porzak *et al.* (2018) analysed key concepts and methods of career counselling and identified approaches such as systemic, constructivist, and integrative. The author drew attention to changes driven by scientific and technological progress, emphasising that the development of information technology, robotics, and artificial intelligence significantly influenced the labour market. According to the author, these changes required new approaches to career

counselling and adaptation to rapidly changing working conditions. R. Porzak *et al.* (2018) recommended focusing on the development of flexible skills (critical thinking, creativity, communication, adaptability, and lifelong learning) and called for closer cooperation between educational and industrial sectors to create programmes aligned with labour market needs.

Ukrainian scholar O. Hrinova (2018), in the dissertation, studied the psychological mechanisms influencing the life path planning of young people. The author described how personal traits, social factors, and values influenced life goal setting and strategies among the younger generation, noting that career choice should be conscious. H. Aliksieieva (2024) analysed methods for assessing the effectiveness of career guidance activities and proposed the use of comprehensive approaches in career diagnostics (surveys, observation, labour market analysis, and evaluation of guidance programme results). The author highlighted the importance of systematic monitoring to improve career guidance approaches. T. Klybanivska (2020) focused on the conscious career choice of senior pupils, stressing the factors influencing self-determination, with the most significant being social environment, psychological characteristics of the applicant, and the educational setting. The author emphasised the need for an individual approach and the creation of conditions for developing personal qualities that would support informed career choices. Practitioner in career guidance, educator, and Ukrainian scholar S. Koda (2020) demonstrated how changes in education influenced career choice processes and described new approaches that created conditions for pupils to consciously select the professional growth paths.

These new approaches involved integrating digital technologies, project-based learning, and the development of soft skills, along with the support of career advisers. I. Myshchyshyn & Yu. Dmytriv (2020) analysed social, psychological, and economic factors influencing career choice. The authors emphasised the decisive role of

family, school environment, and media in shaping youth's professional orientation. Ukrainian scholar Z. Okhrimenko (2021) analysed a system of activities aimed at helping students choose a profession. The author described various methods of career guidance, including consultations, training sessions, masterclasses, and workplace internships. The author emphasised the importance of integrating theoretical knowledge with practical skills for successful professional development and underlined the relevance of career guidance in modern society. The author examined the axiological foundations of career selection, emphasised its importance, and proposed several diagnostic methods focused on personal values and the influence on career choice. The scholar also provided practical recommendations for HR professionals, including: focus on the candidate's personal values, use of comprehensive diagnostic methods, consideration of sociocultural context, and labour market specifics. In a collective article by Ukrainian researchers L. Rebukha *et al.* (2022), the directions and stages of career guidance work in general secondary education institutions were presented (diagnosis of aptitudes, career education, counselling, development of individual guidance trajectories). Special attention in career counselling was paid to the role of the teacher. At the same time, the issue of applying a systemic approach in developing a comprehensive career guidance model for pedagogical specialties at universities preparing bioeconomic professionals of the "human-nature" type was still insufficiently explored in the academic literature.

Materials and Methods

The system of career guidance for pedagogical specialties was developed and implemented at the National University of Life and Environmental Sciences of Ukraine (which, according to international classification, belonged to life sciences universities) during 2017-2024. It included the launch of two pedagogical specialties and three educational-professional programmes (Bachelor's – "Professional Education"; Master's –

“Higher Education Pedagogy” and “Information and Communication Technologies in Education”), which were largely finalised in terms of methodological support by 2019. This constituted the first, preparatory stage, during which methods such as analysis of curricula and educational programmes of both foreign and Ukrainian universities were applied, along with comparison and selection of educational content. This aligned the pedagogical programmes – where the guidance system was implemented – with leading European and national analogues (Vasiuk, 2019; Sopivnyk, 2020). During the second stage (2019-2020), the model of career guidance for pedagogical specialities was developed using the modelling method, which involved creating a graphical twin of the phenomenon under study. The third stage, from May 2020 to October 2024, involved the implementation and refinement of the model through monitoring and adjusting its main components, considering changes in admission conditions and rules. Observation, interviewing, statistical processing of career activity data from educational process stakeholders, and enrolment indicators were used. At this stage, monitoring of quantitative and qualitative parameters of student enrolment was conducted, and conclusions were drawn about the effectiveness of the system.

The sample included applicants who submitted applications for pedagogical specialities at one of two life sciences universities – namely, the National University of Life and Environmental Sciences of Ukraine. The general population was less than 10,000 individuals, so according to the “Paniotto Grid”, a representative sample could consist of fewer than 400 persons. The study covered a cohort of 604 bachelor’s and 632 master’s level applicants, making the data fully representative. As the career guidance model for pedagogical specialities in life sciences universities was implemented, the dynamics of enrolment across three pedagogical programmes were analysed from 2020 to 2024 – including the number of applications submitted, number of enrolled students, and the percentage of admitted applicants out of total

applications. Influence from external, non-experimental factors (i.e. unrelated to the implemented model) was also tracked – including changes in admission requirements such as the introduction of the National Multi-Subject Test (NMT), Unified Entrance Exam in Foreign Languages, and Unified Professional Entrance Test for pedagogical specialities. These changes were clearly reflected in the numerical dynamics. The study was conducted in compliance with all methodological standards and adhered to ethical norms (ASA, 2018).

Results and Discussion

Modelling the career guidance system with consideration of its key components

Career guidance work, like any other form of activity and cooperation between people, must be based on scientific and organisational principles through structuring and bringing together into a corresponding unity – when the totality of the components of a defined process, which is to unfold in space and time, are parts of a system with close functional connections between them. Such unity resembles a complex mechanism that functions reliably and smoothly, where gears come into contact with other parts with precise calibration, step by step, according to a predetermined and defined algorithm (Ostapenko *et al.*, 2024). The same applies to career guidance work in the context of the educational services market, which must be a well-established and structured system, the implementation of which ensures the desired effect.

Selection by vocation within the framework of career guidance for pedagogical specialities at life sciences universities has its specific features, since it concerns the training of teaching staff for working with future specialists in bioeconomic professions of the “human-nature, land, living organisms” type. This type of educational institution focuses specifically on training personnel for the agro-industrial and environmental sectors (Klybanivska, 2020). Life sciences universities have the own specificity. Life sciences, or biosciences, are disciplines that study the world of living nature with all its organisms and

processes (Bhatia, 2019). Life sciences include biology, ecology, medicine, biotechnology, and related fields. These sciences also encompass certain anthropological cycle disciplines, such as anthropology, psychology, and sociology, studying the human being as a biosocial entity. Other humanities disciplines are only partly related to the life sciences – these disciplines complement the abovementioned sciences but do not coincide with them. From this follows that universities where the training of specialists prioritises the study of the aforementioned sciences, as well as applied life sciences derived from sciences (such as agronomy, agroecology, land reclamation, bioengineering, agriculture, health sciences, nutrition science, and others), are referred to as “agricultural”, “environmental”, or “life sciences universities” (as per European and global practice). Accordingly, the teaching staff trained by universities of this type are professionally equipped – in terms of competencies and programme learning outcomes – to work specifically with learners pursuing bioeconomic professions of the “human-nature” type.

Self-determination in the context of career choice is an important aspect of designing prospects for self-development and career building. The agents of career guidance work at life sciences universities must help young individuals make this choice beneficially – in accordance with the abilities and talents – and to ensure that each person finds the place in nation-building, in the development of the country, by choosing an activity aligned with the inclinations and aptitudes (Fig. 1).

The model includes five main components: the target component reflects the objective, which is to ensure career selection in line with applicants’ interests, aptitudes, and talents, and is detailed through the implementation of specific tasks. This includes carrying out career diagnostics for school-leavers and graduates of professional pre-tertiary education institutions, conducting questionnaire surveys on “Criteria and motives for choosing a profession”, and applying express methods for identifying aptitudes and talents (Susan Dellinger’s psychogeometric test, the

game “Family Photo”, “String”, “Joint Drawing”, “People on the Tree”, “Creating a Career Silhouette”).

Preparation of career guidance agents for fulfilling enrolment tasks included holding seminars to improve the professional skills of academic and teaching staff, particularly in advising potential applicants. This was reflected in a dedicated section on the Pedagogy Department’s web resources at NULES of Ukraine (National University of Life and Environmental Sciences of Ukraine) (Criteria and motives..., n.d.). The training programmes for career guidance agents varied in content and depended on the division of responsibilities during the admissions campaign. At this stage, the first pedagogical condition was implemented: “ensuring the readiness of career guidance agents to promote the programme and support applicants during the admissions phase”. This condition involved defining a specific group of individuals within the departments who, together with selection committee secretaries, assisted applicants in formalising the applications: submitting forms, advising on motivation letters, entering data into the Unified State Education Database (USEB), and compiling personal files. A separate group was distinguished for those performing communicative roles – engaging with applicants and the parents, able to find the right words and persuasive arguments. This was emphasised by A. Ostapenko *et al.* (2024), who argued that the role of teachers as tutors and facilitators – helping students form an individual educational and professional path – is crucial. Therefore, there is a pressing need to improve teachers’ qualifications regarding the implementation of a competency-based approach to career promotion and counselling. In effect, academic, and teaching staff were transformed into agents working with applicants and career advisors equipped with methodological and psychological readiness to carry out career guidance functions, establish contact with potential entrants and the parents, and support the abovementioned groups of people throughout the admissions process. These agents were usually recruited from among the most qualified experts

in the field, holding academic degrees and possessing a deep understanding of the nature of the specialties, professional characteristics, employment prospects, and labour market demand for the training the agents represented. The agents mastered applicant diagnostics techniques, understood applicant psychology, knew the conditions and rules of admission, motivation letter

requirements, and competitive score calculation methods. To master a wide range of formats and methods of working with applicants, these agents, and counsellors were equipped with knowledge, skills, and abilities through specialised classes and individual instructions, provided by experienced specialists from graduating departments and admissions committee members.



Figure 1. System of career guidance work for pedagogical specialties at life sciences universities
Source: developed by the authors

Optimisation of career promotion was achieved through applying the advice of “compliance professionals”. Career guidance agents understood the process of operating within a market and knew that an educational service is a product, the quality of which determines demand, and a potential applicant is a client who will choose the best product. Even if clients do not understand the desires – as Steve Jobs once said – the clients were instilled with a useful desire and interest in professions and the motives for choosing a professional development path were activated (Isaacson, 2011). Advice on applying marketing techniques in the educational services market, tested by psychologist, marketer, and business consultant R. Cialdini (2009), proved effective and efficient.

Provision of individual support for potential entrants up to the moment of enrolment. At the National University of Life and Environmental Sciences of Ukraine – a university belonging to the life sciences category – the Academic Council of the Faculty of Humanities and Pedagogy adopted a decision encouraging academic and teaching staff to involve at least two interested potential entrants in the institution’s activities. These entrants, interacting with professors and associate professors of the department, recognised the value of the exchange (Sopivnyk *et al.*, 2023). Such lecturers attracted youth with the original disciplines, innovative forms and methods of pedagogical interaction, and master classes, and as mentors, the lecturers ensured educational support for the personal and professional development of both entrants and future students.

Provision of quality educational services in the training of pedagogical personnel. An educational service, unlike basic services, is complex, multifaceted, and extremely demanding. Yet it is still a service – like car maintenance or a beauty salon – where everything matters: location, facilities, interior aesthetics, equipment, staff, and expected results supported by previous graduate successes. Modelling a career guidance system included continuously updating the content of pedagogi-

cal training, responding to employer demands, and introducing relevant disciplines accordingly.

Highlighting methodological approaches and the content of career guidance for pedagogical specialities at life sciences universities

The methodological component of the proposed system (model) includes approaches and principles that guided the work. The first and most important was the systemic approach, which ensured synergy and measurable results. It provided a holistic view of the career guidance process, linking all elements: pupils, students of pre-tertiary vocational institutions, lecturers, curricula, resources, the social environment, parents, teachers, and key influencers (Department of Pedagogy NULES, n.d.). Career guidance often began with pupils of middle school age and continued through the senior years of pedagogical degree programmes at NULES, creating a continuous developmental line. The process involved employers, form tutors, students, career consultants from the Pedagogy Department, parents, and friends of applicants – all forming a single support system for potential entrants (Cherusheva & Synyakov, 2020). Information was disseminated not only through face-to-face interactions but also via modern technologies, digital tools, self-assessment platforms, testing, and skill analysis (Pordelan & Hosseinian, 2021). This was supplemented by diverse methods and content of career guidance activities, with continuous monitoring and results analysis allowing for corrections to approaches and methods.

The competency-based approach used in the model focused efforts on the acquisition of knowledge, skills, and values by both applicants and students. This included integration into the educational process, individualised support, and personalised counselling for applicants and the parents. This approach prioritised the development of key and professionally essential competencies that enable successful adaptation to the demands of the modern labour market. Instead of mere awareness about professions,

students were taught to make choices, take responsibility, and independently plan the career path. Emphasis was placed on the development of such key competencies as self-awareness, self-assessment, communication, emotional intelligence, and readiness to choose. Specifically, for the “Professional Education. Agricultural Production, Processing of Agricultural Products and Food Technologies” speciality, students gained psychological-pedagogical knowledge and soft skills relevant across work domains, alongside solid training in agro-industrial technologies, agricultural law and economics, animal husbandry, aquatic bioresources, biotechnology, and food technologies. The realisation of the competency-based approach involved helping applicants master such key competencies as self-awareness, critical thinking, communication, and decision-making. This is considered significant in research by T. Kochubei & M. Mishchenko (2021). A. Pidopryhora *et al.* (2022) interpret competency as an integrated ability combining knowledge, skills, and attitudes, all aimed at producing outcomes that reflect graduates’ capacity to apply the knowledge in real-world conditions. Thus, academic staff became not only knowledge bearers but also facilitators, mentors, and advisers to applicants and students.

The aforementioned scholars’ view is shared regarding the importance of developing skills that meet labour market needs, especially soft skills and the ability to learn independently – key attributes of a modern specialist. Entrants were aware of this due to the inclusion of relevant subjects in curricula, such as “Leadership and Administration”, “Foundations of Soft Skills Development”, “Start-ups in Education and the Agro-industrial Complex”, “Psychology of Manipulative Influences”, and others. Dual education and active cooperation between the department and employers were also being implemented.

The learner-centred approach focused on the interests, aptitudes, and talents of potential entrants. Its main goal was to help each person find the own professional path. Individual counselling

and testing were conducted, and flexible curriculum options allowed applicants to build the growth trajectory. For instance, in 2022, in response to a request from an applicant “N”, courses in “Arbosculpture”, “Phytodesign”, and “Floriculture” were added to the elective section of the curriculum for the “Professional Education” speciality, as she intended to work as a business coach in a large agro-company, training staff in landscape care. At the same time, psychological support helped applicants better understand the strengths and overcome difficulties. Constant communication, stimulation of self-reflection, and envisioning a future professional life were encouraged. Essentially, at the admissions stage, applicants selected and established contact with a departmental career counsellor, who later became the tutor and supervisor of individual professional development programmes (Ostapenko *et al.*, 2024).

The axiological approach embedded in the model entailed the promotion of professional, civic, and self-realisation values, forming the foundation of career guidance content. An important value for the applicant was – and remains – obtaining a sought-after and prestigious speciality, mastering the anthropological sciences, teaching and mentoring professions, and accessing the opportunities that education provides, particularly for achieving leadership, reaching the highest “growth point” in professional and personal development and self-improvement, integrating into society, contributing to national development and reconstruction, and enhancing the country’s defence capacity by passing on social and professional experience to the next generation of professionals in bioeconomic fields. The approaches described above were implemented within the authors’ model, in combination with guiding principles such as voluntariness, individual approach, complexity, systematisation, continuity, scientific validity, and accessibility. The content component also included information about curricula and course syllabi, made available to potential entrants through the Pedagogy Department’s website at NULES of Ukraine (Educational

and Methodological Support of the Pedagogy Department at NULES of Ukraine). Additionally, this component included informational content based on the premise that socio-economic professions of the “human-to-human” type are prestigious, noble, and timeless, involving interpersonal interaction between two living, intelligent, and thinking systems endowed with consciousness, who exchange various data, information, values, and intellectual and spiritual assets. Crucially, this exchange is accompanied by emotions and the expression of personal attitudes – something that machines or algorithms cannot replicate. Technical devices and programmes can only assist people in socio-economic professions but can never replace the human element. Hence, pedagogical specialities have great potential and are considered eternal (Pidopryhora *et al.*, 2022).

In response to a request, Artificial Intelligence (AI) proposed a list of positions and professions that will remain relevant up to 2030. Notably, many of these are related to the teaching profession, including: ethics manager, digital rehabilitation consultant, companion for the elderly, personal memory curator, virtual reality travel manager, child mental safety specialist, city farmer, bioethics specialist, digital currency adviser, and AI management specialist. Among specifically pedagogical roles, AI identified the following: moderator, educational pathway developer, tutor, project-based learning organiser, online education platform coordinator, start-up mentor, game master, and mind-fitness coach.

Development of an algorithm for applying forms, methods, techniques, and tools in accordance with the stages of implementing career guidance for pedagogical specialities at life sciences universities

The operational-activity component of the model (system) comprised the forms, methods, techniques, tools, and measures through which career promotion, counselling, and guidance were implemented. The system is technological in nature and unfolds over space and time in a purpose-

fully defined sequence (Rebukha *et al.*, 2022). This correlates with theories of cognition, reality perception, and the component-based structure of personality (Bekh, 2022). The process began with the implementation of the second pedagogical condition and activation of the information stage of the operational component. At this stage, applicants were provided with information and knowledge about pedagogical specialities at life sciences universities and were shown career development opportunities. This was primarily done through verbal methods: conversations, lectures, presentations, webinars, individual consultations, distribution of brochures, promotional videos, and video interviews with graduates and students, which were made available on the main page of the Pedagogy Department’s website (Pedagogy Department of NULES of Ukraine). Career guidance tests were also used to help applicants better understand the interests and aptitudes (Ihnatovych *et al.*, 2021). An original form of work at the graduating department was the use of networking connections – both vertical and horizontal (Ferguson, 2017). Career guidance in the educational services market was carried out in a synergistic unity through horizontal cooperation, converging different forms of collaboration between academic staff and students, supervisors and postgraduate candidates, PhD candidates, within research schools, and between leaders and the followers. Collaboration also included partnerships with distinguished alumni, successful individuals, heads of educational and research institutions, and employers. A notable example was the research school “Formation of leadership capabilities and a value-based worldview of personality”, which included several dozen candidates of sciences, PhDs, and Doctors of Pedagogical Sciences working in educational institutions across Ukraine. This school also included top master’s graduates in “Educational and Pedagogical Sciences”, such as private school founders, directors of professional pre-tertiary institutions, and innovative teachers working with both students and school pupils (Cherednyk, 2025).

During the second, motivational stage, applicants' needs regarding career choice were activated, stimulating conscious decision-making about the professional growth path. Training exercises such as "My Abilities" and "Profession Portfolio" were conducted. Group discussions, coaching sessions, workshops, and meetings with employers in the humanitarian and pedagogical fields were held. Workshops were particularly effective, as confirmed by research conducted by J. Gashi *et al.* (2023), which showed that youth participation in these activities positively influenced the career self-efficacy, realistic expectations regarding the professional future, and the concretisation of the career goals.

During the active stage of the model, applicants engaged in transforming reality through practical activities simulating the pedagogical profession. These included role-play games like "I am the college principal", case studies addressing various pedagogical scenarios (e.g., preparing a lesson on "Decarbonisation of the Agro-Industrial Complex", organising a civic education hour on "Heroes Live Forever!"), practical classes, internships at agro-enterprises in HR management departments with coaching functions (e.g., Biotechnology – Centre of Ukraine, "Silpo", "Shybas"), participation in the "Teacher as a Leader" project, interviews with applicants (Cherednyk, 2024), volunteering, role-play, professional simulation games, the quest "Anthropocentric Professions", the case "Technological Innovation in Pedagogical Creativity", all conducted in the Information and Communication Technology in Education Laboratory of the Pedagogy Department. This laboratory was created as a means to enhance career promotion efforts for pedagogical specialities and is described in a publication by a Ukrainian scholar (Vyhovska, 2024). Applicants had the opportunity to apply the knowledge in practice and test the specifics of the teaching profession (Ostapenko *et al.*, 2024).

The reflexive stage of the operational component involved applicants' self-determination. Based on analysis and self-analysis, comparison of the abilities and potential opportunities, the ap-

plicants chose a profession, speciality, and specific pedagogical educational-professional programme. Accompanied by a career adviser from the graduating department, applicants analysed the experiences, assessed the achievements, and drew conclusions about the future field of work. Individual and group reflection was applied – including achievement portfolios, discussions of activities, self-assessment logs, individual professional development plans. This stage also featured personal meetings with applicants to review the experiences and challenges, group discussions for experience sharing, portfolio creation, journal keeping for reflection, and developing personalised plans with short- and long-term goals. These tools helped applicants better understand the preferences and make informed decisions about the careers.

Creation of result monitoring mechanisms based on quantitative indicators of enrolment in pedagogical specialities

To achieve the desired outcome, it was essential to engage in solving career guidance tasks and broadly apply marketing techniques to achieve synergy. The graduating department worked to promote its educational programmes. This led to measurable synergy, reflected in the quantitative and qualitative results (e.g., first session results of newly enrolled students). Professors, associate professors, or assistants aimed to be intellectually and professionally appealing to youth, thus becoming reference points for applicants and role models for academic excellence. The extension of fixed-term contracts and the awarding of permanent contracts to academic staff depended on the ability to "magnetise" school pupils, vocational education applicants, and pre-tertiary students – igniting and activating achievement motivation, as confirmed by student surveys. The department tracked the career promotion activity of academic staff by quantifying recruited applicants and, ultimately, by identifying enrolled students to determine the effectiveness of counselling and support in percentage terms. A summary of this information is provided below (Table 1); however, the names of academic staff are omitted for ethical reasons.

Table 1. Results of career guidance activities of scientific and pedagogical staff of the graduate department for admission to study in the speciality "Professional Education" at the National University of Life Resources and Environmental Management of Ukraine

No.	Encrypted names of SPS	Number of applicants enrolled in studies under supervision of the respective SPS		
		2022	2023	2024
1.	S	29	53	29
2.	Ch	16	23	22
3.	Ko	5	10	17
4.	Di (2022-2023), Sy (2024)	20	12	4
5.	Ho (2022), R	2	5	2
6.	M	1	4	2
7.	A	3	1	2
8.	K	6	6	1
9.	Bu (2022-2023), Mi (2024)	2	1	2
10.	Va	4	3	1
11.	Vy (2024)	0	0	1
12.	Sm	4	6	1
Total		92	124	84

Source: V. Kostyniuk (2024)

It is important to note that applicants who received guidance from departmental career counsellors were more frequently and quantitatively satisfied with the choice of the teaching profession and professional development pathway. This is confirmed by surveys comparing applicants who applied independently and those who received support from departmental consultants. Such guidance also influenced the applicants' awareness of

the professional development choices, taking into account the abilities, interests, and market conditions. Increasing school-leavers' responsibility for the career choices and fostering a proactive attitude is also relevant to other studies, as stated by A. Ostapenko *et al.* (2024). To support this, data on the dynamics of submitted applications and student enrolments in pedagogical specialities are tracked annually, as shown below (Tables 2, 3, 4).

Table 2. Dynamics of the number of applications submitted and students enrolled in the speciality, "Professional Education. Agricultural Production, Processing of Agricultural Products and Food Technologies"

Year	Number of applications submitted	Number of students enrolled in studies	Number of enrolled students in %
2020	82	53	65
2021	118	55	47
2022	105	92	88
2023	165	124	75
2024	134	84	63

Source: developed by the authors based on State Enterprise "Inforesurs" (n.d.)

As shown in Table 2 and Figure 2, which present the dynamics of student enrolment in the "Professional Education" speciality at the National

University of Life and Environmental Sciences of Ukraine from 2020 to 2024, there has been a noticeable increase in enrolment numbers despite

the COVID-19 pandemic, the war, and the full-scale invasion. This growth indicates the viability and effectiveness of the system developed and reflected in the proposed model. A slight decline in the number of enrolled students was recorded in 2024. However, this was not due to any

experimental variable but rather the adjustment of admission requirements – specifically, the introduction of a mandatory condition for contract-based admission to the “Professional Education” speciality, requiring NMT (National Multi-subject Test) certificates in four subjects (Fig. 2).

Table 3. Dynamics of the number of applications submitted and students enrolled at NULES of Ukraine for speciality 011 “Educational and Pedagogical Sciences”, educational programme “Higher School Pedagogy”

Year	Number of applications submitted	Number of students enrolled in studies	Number of enrolled students in %
2020	111	54	49
2021	31	12	39
2022	98	50	51
2023	74	40	54
2024	46	26	57

Source: developed by the authors based on State Enterprise “Inforesurs” (n.d.)

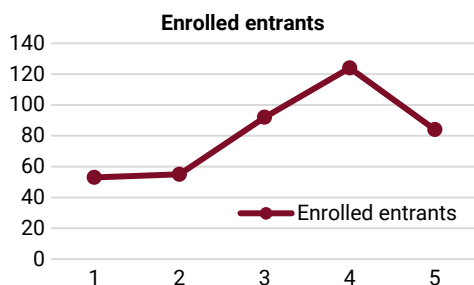


Figure 2. Dynamics of enrolment in the “Professional Education” speciality at NULES of Ukraine

Source: developed by the authors based on State Enterprise “Inforesurs” (n.d.)

A similar pattern can be observed in the enrolment for two master’s degree programmes. However, in 2021, when the Unified Entrance Exam in a foreign language was introduced as a mandatory admission requirement – complicating and formalising the procedure, as applicants also had to take three additional internal entrance tests – these figures objectively declined (Table 3, Fig. 3). Nonetheless, the same system of organising enrolment for pedagogical specialities at life sciences universities proved effective the following year, in 2022, as the enrolment figures quadrupled, allowing for the formation of fully completed groups (Table 4, Fig. 3, Fig. 4).

Table 4. Dynamics of the number of applications submitted and students enrolled at NULES of Ukraine for speciality 011 “Educational and Pedagogical Sciences”, educational programme “Information and Communication Technologies in Education”

Year	Number of applications submitted	Number of students enrolled in studies	Number of enrolled students in %
2020	82	49	60
2021	25	9	36
2022	70	36	51
2023	61	28	46
2024	34	20	59

Source: developed by the authors based on State Enterprise “Inforesurs” (n.d.)

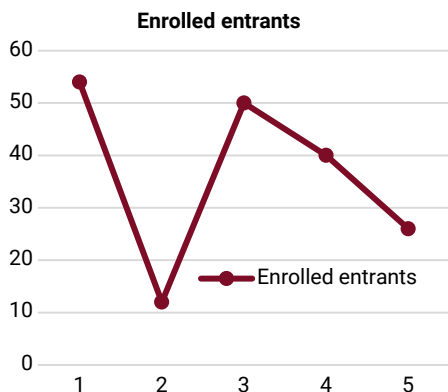


Figure 3. Dynamics of enrolment in the educational program “Higher School Pedagogy” at the NULES of Ukraine

Source: developed by the authors based on State Enterprise “Inforesurs” (n.d.)

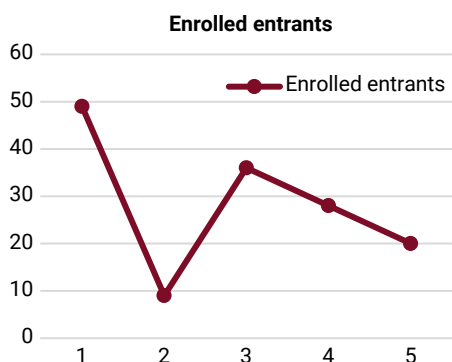


Figure 4. Dynamics of enrolment in the educational program “Information and Communication Technologies in Education” at the NULES of Ukraine

Source: developed by the authors based on State Enterprise “Inforesurs” (n.d.)

The proposed model for organising career guidance activities for pedagogical specialties at a university of life sciences proved effective. Thanks to the systematic involvement of academic and teaching staff, and the combination of informational, consultative, and educational work, there was an increase in both quantitative and qualitative indicators of enrolment, as well as an improvement in applicants' awareness of the career choices.

Generalising methodological advice for stakeholders in the educational process regarding the implementation of career guidance tasks for pedagogical specialties at life sciences universities

The experience of the Pedagogy Department of NULES of Ukraine, along with relevant scientific literature, enables the formulation of such advice, verified by many years of practice in the educational services market. The education market defines a straightforward model of relations – client-orientedness – therefore, regardless of the applicant's temperament, it is essential to demonstrate marked politeness and respect, to be able not only to listen but also to hear the applicant, and to respond promptly to the moods and needs.

It is worth applying the rule of social proof. For instance, when a car dealer wishes to sell a vehicle quickly, the viewing for several clients is arranged simultaneously to create a sense of demand (Cialdini, 2009). In career guidance work, attention is often paid solely to the number of students ultimately enrolled, overlooking the number of applications submitted. However, the number of applications for a particular programme serves as an indicator of demand and liquidity. Hence, the volume of submitted applications is of significance. The outcomes of previous admission campaigns are valuable, due to being displayed on the informational platforms “Yedbo-vstup” and “Vstup-info”. When applicants crowd near the document submission window for a specific programme, this serves as additional evidence of adherence to quality standards in the provision of educational services.

It is advisable to apply the rule of reciprocity. When prospective students attend an Open Day or visit a specific department, it is desirable that these students receive handouts. It is worth providing brochures, textbooks, manuals, as well as offering refreshments such as tea and coffee, or organising a free campus tour. Investing time and effort in visitors reflects both hospitality and commitment. On one hand, this demonstrates courtesy and full dedication; on the other, it operates on

a psychological level. When individuals observe genuine effort and engagement, the individuals are more likely to respond positively and less inclined to refuse. Furthermore, consistent diligence and integrity in such interactions can influence how applicants expect to be treated in the future.

It is recommended to emphasise all attractive aspects of the educational offering and to downplay or postpone discussion of any potential shortcomings. It is advisable to focus on the advantages of studying the programme – such as the ecologically clean location of the institution, healthy dining options, comfortable living conditions, strong material and technical base (computers, smart boards, multimedia, virtual reality rooms, laboratories, a botanical garden, dedicated teaching staff, and opportunities for distance and dual education). At the same time, it is unnecessary to rush to disclose disadvantages, as these are typically highlighted by competitors.

It is essential to cultivate the principle of “authority” in career guidance for pedagogical specialities at life sciences universities. Career consultations and applicant support should not be the sole responsibility of secretaries, laboratory assistants, and PhD students – professors, associate professors, and senior academic staff should also be involved. Ideally, these senior figures should serve directly as agents of career guidance. The words of individuals with recognised authority carry significant weight and are often highly persuasive (Milgram, 2009). It is advisable, during university tours, to introduce applicants and the parents to the dean, the head of department, and – if possible – the rector or vice-rector, whose endorsement adds weight to the proposal. Reference may be made to the obedience to authority explored in S. Milgram’s (2009) experiment. One illustrative case concerns a female applicant who now studies at the Faculty of Humanities and Pedagogy of NULES of Ukraine. Despite scoring 173 on the National Multi-Subject Test (NMT) and receiving a recommendation for state-funded admission to a university in Kyiv, an applicant chose to pursue the “Professional Education” programme on a contract

basis at another institution. When questioned about the decision – which ran counter to parental preference for free education – the applicant explained: “The secretaries at the admissions office there were simply going through the motions and speaking in a dismissive tone. The secretaries left a discouraging impression, as if being tired of even seeing me”.

In the same context of promoting “authority” within career guidance and promotional work, it is necessary to provide examples of successful careers in the advertised field – such as those of academicians of the NAES of Ukraine S.M. Nikolaienko, corresponding member O.I. Shcherbak, or former Chairmen of the Verkhovna Rada of Ukraine O.O. Moroz and I.S. Plyushch. It is also helpful to refer to the success stories of employers, or of distinguished professors and associate professors from the department, whose names and achievements are well known.

It is advisable to apply the principle of “scarcity” by communicating to applicants that the educational service on offer is limited in number and available only for a short time. Consequently, quick action is required. As with forbidden love in *Romeo and Juliet*, the allure of samizdat literature in Soviet times, or time-limited promotional offers, scarcity stimulates interest and urgency. These strategies are consistent with the principles outlined by R. Cialdini (2009).

It is crucial to retain contact information following every interaction with an applicant. Each career guidance event – whether a brief presentation, group meeting with a class or course, or individual consultation – should conclude with the applicant completing a Google Form via a QR code. In this way, prospective students become affiliated with the institution and the department, gaining access to free consultations, masterclasses with professors and associate professors, and opportunities to attend lectures or seminars as guest participants in subjects of interest. Moreover, a department-level database of potential applicants is established. From this point onwards, individual work with the applicant begins, supported by a dedicated career consultant from the department.

Conclusions

The system of career guidance for pedagogical programmes at life sciences universities is presented in the article through modelling and visualised as a graphical representation of the studied phenomenon. The system has specific features determined by the preparation of teaching staff to work with future professionals in bioeconomic professions of the “human-nature” type. The system (model) is based on scientific and organisational principles, includes interrelated components (goal-oriented, methodological, content-related, operational, result-oriented, and control-corrective), which function in unity and ensure synergy of goals, tasks, approaches, principles, content, pedagogical conditions, forms, methods, tools, and actors (teachers, parents, career consultants, students, employers) through structured, algorithmic cooperation.

This system is based on systematic (functional unity of elements), competence-based (development of key and professionally significant competencies in students for future employment), person-oriented (helping each applicant find the own professional path), and axiological (internalisation of professional, civic, and self-realisation values) approaches. These are implemented alongside the principles of voluntariness, individualisation, complexity, consistency, continuity, scientific integrity, and accessibility.

The content of this career guidance system is rooted in values and assumptions that socio-economic professions of the “human-human” type are both promising and prestigious, because of involving emotional interaction between thinking systems – a skill increasingly demanded in an era of AI, robotics, and digital transformation. The model was implemented through clearly defined stages corresponding

to the epistemology and component structure of the individual. The algorithm included: stage 1 – use of verbal methods; stage 2 – activation of interest in pedagogical professions; stage 3 – testing of professional skills; stage 4 – reflection on career self-determination.

The system also included performance monitoring mechanisms to track career guidance activity among department staff and measure success based on the number of applicants engaged, supported, and ultimately enrolled. Over five years, dynamic data on enrolment in pedagogical programmes confirmed the effectiveness of the proposed model – despite objective challenges such as the pandemic, war, and mass youth migration abroad.

The study also summarised practical recommendations for career guidance stakeholders, including: applying social proof, cultivating reciprocity, showcasing appealing aspects of pedagogical study, using authority, applying the scarcity principle, obtaining applicant contact information, and forming a database of prospective students. Future research may involve expanding this model to other academic programmes, adapting it to dual education systems and digital transformation, and developing informational-analytical platforms for monitoring, forecasting, and individualising applicant trajectories based on potential, labour market needs, and societal demand.

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Conflict of Interest

None.

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Система організації профорієнтаційної роботи на педагогічні спеціальності університетів наук про життя

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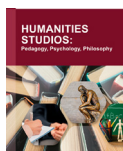
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Анотація. Метою статті було розробити моделі (системи) організації профорієнтаційної роботи на педагогічні спеціальності університетів наук про життя. У статті наводились відомості щодо створення та перевірки ефективності системи профорієнтаційної роботи на педагогічні спеціальності аграрних та природоохоронних університетів, що розглядалося як цілісна єдність вибудована на науково-організаційних засадах із впорядкованими складовими елементами, що перебували між собою у тісних зв'язках і залежностях, формуючи відповідну функціональну єдність. Встановлено, що створена система мала специфічні особливості, оскільки забезпечила відбір здобувачів на педагогічні спеціальності університетів наук про життя, завданням яких була підготовка фахівців біономічних професій типу «людина-природа». Акцентовано, що модель охоплює цільовий, методологічний, змістовий, операційний, результативний та контрольний-корекційний компоненти, що дозволяло досягти синергії мети, завдань, підходів, принципів, змісту, педагогічних умов, форм, методів, засобів, заходів суб'єктів (учителі, батьки, профконсультанти випускових кафедр, студенти, роботодавці) у рамках впорядкованої, алгоритмічної співпраці. Модель базувалася на системному, компетентністному, особистісно-орієнтованому та аксіологічному підходах, реалізувалася алгоритмічно із поетапним застосуванням форм, методів, прийомів, засобів, заходів у відповідності із покомпонентною структурою особистості. Проаналізовано, що впроваджений алгоритм передбачав застосування вербальних методів, методів актуалізації потреб вибору педагогічної професії в університетах наук про життя, апробацію професійних умінь, навичок та рефлексивні методи професійного самовизначення. Система передбачала механізми контролю її результативності, що дозволило відслідковувати динаміку наборів та показники профагітаційної активності суб'єктів освітнього процесу, за допомогою чого доведено її ефективність яка виявилась у динаміці поданих заяв та фактично зарахованих на навчання студентів з 2020 по 2024 роки, незважаючи на об'єктивні ускладнюючі фактори, такі як пандемія коронавірусу, війна, значна міграція молоді за межі країни. Вказано, що ефективність реалізації системи організації профорієнтаційної роботи на педагогічні спеціальності університетів наук про життя залежить від забезпечення виокремлених педагогічних умов та дотримання суб'єктами профагітаційної роботи відповідних методичних порад

Ключові слова: модель системи профорієнтації; інструменти професійного орієнтування; діагностика професійної спрямованості вступників до педагогічних програм; учасники процесу профорієнтації; консультанти з вибору професії; механізми контролю кількісних показників набору на педагогічні спеціальності



Critical thinking and artificial intelligence: Modern possibilities of interaction

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Abstract. The relevance of this study was determined by the need for human thinking to navigate the world of information technology. This world poses challenges related to processing and analysing rapidly spreading information. However, this information is not always true; it is often fake or manipulated. The purpose of the present study was to investigate the concept of critical thinking in historical retrospect, its practical significance for the modern world, and the challenges posed to humans by the development of artificial intelligence. The study discussed the development of technology and the related interest in artificial intelligence. However, human thinking and the individual facing the challenges posed by the rapid development of information technology deserve increasing attention. Based on current findings in this area, it was generalised that critical thinking is emerging as one of the principal skills of the 21st century, along with communication skills and creative thinking. Although many people are aware of the value of critical thinking, its popularisation requires more effort. This study analysed the significance of critical thinking and its practical usefulness in helping to improve human thinking. The historical and philosophical processes of forming human thinking, as well as methods of improving it, were also explored. However, this problem should also be considered in the context of modern technology development, including artificial intelligence. Such theoretical methods as generalisation, analysis and synthesis were employed to study the concepts of critical thinking and artificial intelligence. This revealed the potential for interaction between the two fields, which could improve human thinking. This is useful for schoolchildren, students and graduate students, as well as anyone who wants to counteract the manipulative practices of modern times. Overall, artificial intelligence can harm the development of human thinking, but if it is used in conjunction with critical thinking, such cooperation can yield a good productive result that would lead to human success in the rapidly developing world of nanotechnology.

Keywords: knowledge; logical thinking; AI; nature of consciousness; human consciousness; transformational processes; postmodern science

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Introduction

The 21st century has seen a rapid development in the field of technology and artificial intelligence. Artificial intelligence is gradually penetrating all areas of people's lives at different levels, such as self-service in stores, online shopping, smart homes, the medical field, and now even the psychological sphere, where one can find a friend with artificial intelligence and easily communicate with them via smartphone. Some studies by modern scientists reveal certain aspects of this issue. Thus, J. Haber (2020) noted that one factor confirming the tremendous development of AI is AlphaGo, a computer game that defeated the world champion in 2016. The development of artificial intelligence has gone even further, with ChatGPT becoming popular among general users, not just professional IT specialists, since 2007 (Stone-Gross, 2023). From that moment on, interest in artificial intelligence and its applications has been growing. Improvements in artificial intelligence mean that it is now capable of performing highly complex tasks. However, it also poses significant threats to humans, as emphasised by S. Gracová & M. Graca (2024), as well as highlighting the lack of legislative documents to regulate AI development and its potential harm to humanity. It is difficult to give a simple definition of what artificial intelligence is. However, it is worth outlining what is usually meant by this term. Firstly, artificial intelligence was created as a prototype of human thinking with greater capabilities. Unlike the human mind, which can forget information over time, artificial intelligence does not forget anything if it is embedded in the system. A few search operations will generate the required information. Secondly, the inventors of artificial intelligence built a certain rational process into its virtual actions. But, in fact, "artificial intelligence" is a term used to refer to machines (computers) that mimic human cognitive functions, such as learning and problem solving, or can handle complex tasks in the same way as human experts (Spec- tor & Ma, 2019).

Scientists now fear that in a hypothetical future, the development of technology will become uncontrollable, which could lead to dramatic changes in the lives of people and the entire world. This is confirmed by other researchers, such as J. Rudolph *et al.* (2023), who noted that the emergence of advanced technologies often produces violent emotions ranging from doomsday to euphoria. This is why concerns about the dominance of artificial intelligence and its rapid spread into almost all areas of human activity have become so acute. Admittedly, artificial intelligence has already surpassed human thinking in many ways. At least when it comes to storing and remembering large amounts of information, the human brain is certainly capable, but it is in no way comparable to a computer programme. Another challenge posed by artificial intelligence to modern humans is its ability to replace humans in some areas of their usual activities, or even displace them entirely.

Notably, there are several types of artificial intelligence. The simplest types can perform certain actions according to an algorithm. However, there are also strong types of artificial intelligence that are potentially capable of self-development. In such conditions, they can exceed human thinking in almost everything. That is why this issue is extremely relevant and widely discussed in academic circles, as the researchers note some specific features of AI and its interaction with humans, specifically B. Southwell *et al.* (2019), D. Cotton *et al.* (2023), W. Lim *et al.* (2023), and others. In addition, there is a search for counteraction and cooperation between artificial intelligence and human thinking. Critical, logical, analytical, and creative human thinking can facilitate interaction between the two. Therefore, education and self-improvement enable a modern person to develop artificial intelligence and improve human thinking (Zhao *et al.*, 2021). Focusing on critical thinking, M. Rusandi *et al.* (2023) noted that it can enable a person to develop and find harmony in the use of artificial intelligence in education, training, and life. However, artificial intelligence

is developing much faster than human thinking. This should motivate modern people to work on their thinking and constantly improve themselves. The purpose of the present study was to identify opportunities for interaction between artificial intelligence and critical thinking, and to suggest practical ways to develop critical thinking.

Materials and Methods

The methodology of this study was based on the research of the interaction between human critical thinking and artificial intelligence. In some cases, the two are opposed to each other, while in others they can work together. This topic was studied by summarising and systematising information to define and understand the meaning of both concepts for the modern scientific elite, and to assess their respective significance to a modern person who wants to succeed. Analysis and synthesis were widely applied throughout this study. Analysis involved a detailed examination of scientific information sources, including studies that explored the effects of artificial intelligence on human critical thinking. The study analysed the development of the concept of critical thinking, from Aristotle's early work on systematising logical knowledge to the contributions of modern authors like D. Kahneman & A. Tversky (1979), J. Haber (2023), and others. The analysis of this literature helped to systematise the general skills and abilities that a modern person must have to apply critical thinking in decision-making, as well as the significance of artificial intelligence as an opportunity to improve and help develop critical thinking in a modern person. The issue of challenges posed by artificial intelligence to humans was also considered separately. The synthesis method was employed to combine the results obtained through analysis and design into a single system. This method was also applied to demonstrate the integration of various artificial intelligence capabilities for the development of critical thinking. The available data from various scientific sources were combined in this way, providing a general idea of the potential relationship between critical thinking and artificial intelligence.

Generalisation was employed primarily to formulate the conclusions of this study. Generalisation was also used to identify general patterns of artificial intelligence's impact on critical thinking. In this context, the method of systematisation was also applied to present the principal findings logically and consistently, from the beginnings of human thinking to the possibility of its replacement by artificial intelligence. Systematisation was also employed to organise knowledge on human thinking, the process of its formation, and various aspects of its development and degradation.

A careful selection of literature and scientific sources was carried out, based on a series of criteria, such as relevance, fundamental nature in terms of the historical nature of the formation of concepts, practicality of methods for improving thinking, and the modernity of the study. The material was processed using articles and books that describe modern approaches to the interaction between critical thinking and artificial intelligence, as well as studies on the practical impact of AI on modern humans. The literature search was conducted in various scientometric databases, including Google Scholar, Web of Science, and Scopus. The key concepts used for scientific research were "critical thinking", "artificial intelligence", "consciousness", "logical thinking", "analytical thinking", etc. Popular databases were used to broadly cover scientific sources of information, which were then analysed to explore the theoretical and practical implications of artificial intelligence on human thinking and critical thinking specifically. Holistically applying these methods highlighted the opportunities and problematic aspects of the interaction between critical thinking and artificial intelligence for individuals seeking to succeed in the globalised nanotechnology sector.

Results and Discussion

Access to information, freedom of choice, and critical thinking as human challenges

The 21st century is characterised by the rapid development of science and technology, as well as by dramatic changes in human values. Modern

society is characterised by a complex, multi-level structure of interaction and influence. This is generally carried out through transformational processes that can be summarised by the concepts of the globalised world, the post-industrial society and the information society. These concepts represent a new type of society that is emerging under the influence of global processes and the social revolution originating from the rapid development of information and communication technologies and artificial intelligence (Upadhyay *et al.*, 2022). Since the time of F. Bacon, possession of knowledge has been an indispensable criterion of intelligence, but access to information was required. Now, unimpeded access to information via the internet ensures this. However, a new challenge for people and society is the ability to work with this information and generalise it to the level of knowledge. Along with easy and simple access to information, a person also receives challenges that they must constantly address.

The postmodern world affects social processes within countries and across the globe, as well as humanity as a whole. Multiculturalism, which is one of the characteristics of modernity, also ensures transformation in human consciousness. Postmodern consciousness aims to deny traditionalism and the norms that existed before, requiring adaptation to new realities. Ethical, aesthetic, and hermeneutical changes, reflected in and influencing attitudes towards moral values, are marked by the levelling of the traditional nature of societies and cultures, authorities and rules, and human behaviour in relation to other people (Galushko & Batmanglich, 2023). Freedom of expression and the rejection of all kinds of norms, rules, and ideals leads to new problems, one of the first being the problem of making choices. Comparing postmodern culture with modernity, it is worth noting that in modernity, people had certain forms of thought and clear norms of behaviour that gave them a certain vector for their actions and decision-making. The global space of postmodern culture gives a person complete freedom of choice but requires the

use of a special tool to plan and implement their intentions in decision-making. Critical thinking is a valuable tool, which is why there is a growing interest in this phenomenon in Ukraine and around the world, in both the humanities and the applied sciences (Butler *et al.*, 2017).

Although the term 'critical thinking' is often attributed to psychology, it actually combines knowledge from a series of disciplines, including philosophy, logic, analytics, and psychology, among others. Critical thinking covers almost all spheres of human activity. Modern researchers of critical thinking, such as K. Larsson (2017), E. August & J. Trostle (2018), O. Pylypenko (2020), and others agree that the processes taking place around a modern person, namely the complexity of social life, the multilevel and multidimensional nature of social processes, the rapid development of artificial intelligence require a person to use the sharpness of their mind, to reach a greater level of intellectual development, which means the use of critical thinking. Understanding the concept of critical thinking is directly related to categories such as 'thinking' and 'criticism', where the idea that thinking is a process through which all human activity is realised is fundamental. Thinking is the most advanced form of human cognition. Through thinking, a person can reach a level higher than sensory cognition. This is why the study of thinking is at the intersection of many sciences. The human thought process is studied by philosophy, logic, neurobiology, psychology, sociology, cybernetics, and many other disciplines, which is why it could be argued that critical thinking is interdisciplinary. Critical thinking is a form of higher-order thinking comprising a variety of components that contribute to rational human thought.

Consider the historical development of this concept and the areas and disciplines that have shaped it. Main proponents of critical thinking, such as J. Dewey (2008), believe that certain skills aid in developing this type of thinking. One such skill is considering a problem from different perspectives. This is why the historical approach to the formation of the concept of "critical thinking"

is worth paying attention to. The intellectual progress of humankind, marked by the flowering of ancient Greek philosophy, laid the foundations for the development of scientific knowledge. This began to shape human thinking, moving it from sensory cognition to a greater level of abstract thought. The key figures in the development of philosophical science at that time were Socrates, Plato, and Aristotle. Each of these thinkers made a valuable contribution to philosophy and the study of human thought. The science of thinking, or logic, was established by Aristotle in ancient times and involves the study of the processes involved in forming concepts, judgements, and conclusions. As the founder of the systematisation of logical knowledge, in which the classification of information is paramount, he proposed methods for organising and analysing logical arguments, determining the truth or falsity of knowledge and much more besides. His work on rhetoric demonstrates how persuasive and argumentative language can influence human thought (Aristotle, 2005).

The long-standing debate between faith and reason during the Middle Ages, the Renaissance and the modern era paved the way for the scientific and technological revolution and the Enlightenment, where independence, science, and rationality played a pivotal role in shaping human thought. This approach gradually developed into the “scientific method”. As J. Haber (2023) observed, “according to this approach, one formulates a question and then proposes an answer, or a “hypothesis”, which one then treats as confirmed while collecting evidence to either support or refute it. Hypotheses that can withstand such scrutiny become “theories” that, while not necessarily true forever or under all conditions, are considered a sufficient foundation for further research”. This approach has become the foundation of modern science, where constructive scepticism is employed to shape and develop human thought based on scientific statements. The critical thinking approach requires analysing answers in terms of rationality, causality, and only then drawing a conclusion.

A person wants to perceive and understand the reality around them. Understanding means defining concepts for oneself, grasping the essence of objects and phenomena, building cause-and-effect relationships, and identifying the crux of the matter. This understanding is only possible through a mental phenomenon that takes place in complex psychological processes and is called thinking. Such processes cannot be determined by sensory cognition alone. With the help of thought, a person can confidently navigate the world around them, applying their previously acquired knowledge, skills, and abilities to particular situations in life, and generalising, systematising and analysing these processes. Human activity is reasonable when it realises and understands the basic logical laws and relationships formed in objective reality.

Human progress and development:

Critical thinking and AI

The essence of human thinking can be defined as an understanding of universal relationships and the generalisation of all processes around a person, as well as an awareness of the impact of particular phenomena on general processes. Thinking can be defined as a reflection of reality that manifests in a material form. Logic, pragmatism, and psychology have all influenced the modern understanding of critical thinking. Pragmatism is the view that all things are determined by practical consequences rather than metaphysical or experiential features. Psychology is the study of how human thinking progresses from simple actions to higher-order realisations. W. James (1890) and C. Peirce (1877) laid the foundations for the ideas and work of J. Dewey (2008) popularised the concept of ‘critical thinking’. The study “How We Think” demonstrated the significance of pragmatism from the standpoint of psychological understanding. “Thinking is a tool by which we dispel doubt, and doubt is a source of inner pain; people will do anything to eliminate it” (Dewey, 2008). In his discussion of thinking, J. Dewey also talks about the significance of a logical approach to thinking. However, he argued

that this is insufficient for drawing conclusions, as it is necessary to collect all the evidence and conduct all the experiments required to either refute or confirm the idea being considered. J. Dewey refers to this type of thinking as 'reflective', defining it in his study as "the active, persistent, and careful consideration of any belief or possible form of knowledge in light of the evidence that supports it and the subsequent conclusions to which it leads" (Dewey, 2008). Over time, other researchers have replaced the term 'reflective' with 'critical' thinking.

When studying the impact of critical thinking on human progress and development, it is worth noting the work of E. Glaser (1941), whose thesis offered a holistic definition of the concept. His formulation included three components: "1) an openness to thoughtful consideration of problems and things within one's personal experience; 2) knowledge of the methods of logical enquiry and reasoning; and 3) some skill in applying these methods". In 1941, E. Glaser and G. Watson first created and published the Watson-Glaser Critical Thinking Test (n.d.). Another practical tool for critical thinking is Bloom's Taxonomy, which classifies actions according to their level of mental complexity (Anderson & Krathwohl, 2001). Starting with the most basic level, it progresses through knowledge, understanding, application, analysis, synthesis, and evaluation, with each subsequent level requiring the completion of all previous stages. Since 1956, the theoretical format has been replaced by a practical one in which it is necessary to apply and demonstrate all of the above concepts. In the 1960s and 1970s, D. Kahneman & A. Tversky (1979) questioned the effectiveness and stability of thinking. They challenged the idea that humans are distinguished from animals solely by reason, arguing that people often act intuitively, at the level of instinct, which proves that reason does not always 'prevail' and has many shortcomings. As J. Haber (2023) noted: "It turns out that the human mind does not apply its full power to every situation, instead taking "shortcuts" to optimise the flow of information from the senses and transform this information into an understanding that guides

decisions". However, critical thinking is a skill that requires the combination and practical application of a variety of other skills, such as deduction, analysis, language and logic, argumentation, the ability to criticise and defend different ideas, the ability to come to factual and strategic conclusions, the ability to make reasonable assumptions, the ability to construct a cause-and-effect system, etc. (Cahill & Bloch-Schulman, 2012). However, over time, the absorption of information evolves into effective thinking, which requires the ability to communicate and compromise successfully. As conventional knowledge becomes increasingly accessible thanks to information technology and the internet, the modern person needs more than just the ability to search for information on a phone or computer; they need the ability to use knowledge effectively and think critically.

At the same time, however, humans face enormous challenges from the global and rapid development of technology, particularly in the field of information technology – namely, artificial intelligence (Chaplinska & Kabanova, 2021). The world itself has not changed; only the technologies have changed, requiring new knowledge and skills from each of us. Modern society faces a dilemma: human thinking and its forms have not changed since Aristotle first defined them, yet the world is undergoing rapid change, especially in technology, where people must constantly adapt. The world of technology gives humanity quick access to information. Thirty to forty years ago, it was unimaginable that any book could be found online without going to the library.

On the other hand, however, modern science is degrading because artificial intelligence can now generate unique texts in minutes or communicate with people instead of psychologists or friends. The latest development in this area is the creation of female robots in China that can replace a real woman. They can be programmed according to preference and look no different from a living person (AI engineer builds..., 2017). Still, such rapid and powerful developments in artificial intelligence provide twenty-first-century people with

information, but not with intelligence (Bontridder & Poulet, 2021). After all, when we define the human mind and thought processes, it is worth noting that artificial intelligence cannot replace humans because humans have something more. However, when it comes to algorithms and programmed actions, artificial intelligence can perform perfectly.

Various European Union countries are developing governmental documents aimed at regulating the use of artificial intelligence (AI) in different areas. One such document is the EU Artificial Intelligence Act, which is the first law to regulate the relations between AI and humans, as well as protect human rights. Humans constantly face various challenges in AI development (EU AI Act, 2023). One of the key tools for humans in this area is critical thinking, which can help counteract the various manipulations that AI can generate and spread to the public, as well as facilitate its successful use for self-development and improvement.

Conclusions

Thus, when defining the process of developing critical thinking in modern individuals, it must also be recognised that they are greatly influenced by their interaction with information technology resources, especially artificial intelligence. The development of science and technology cannot be stopped, and therefore it is necessary to use them harmoniously to improve the human mind. The best tool for this is critical thinking, which can find compromises to successfully solve problems and find effective solutions. Therefore, it is essential to discuss not only the shortcomings of artificial intelligence, but also how it is used by humans. Notably, the

combination of a highly educated person with critical thinking skills and artificial intelligence could usher in a new era of relations between humans and technology. However, humanity should also be wary of excessive reliance on artificial intelligence, as it can reduce the cognitive load on humans by delegating some of their responsibilities to machines. Nevertheless, this can result in the loss of the ability to think critically, logically, analytically, and creatively. Based on the findings of the present study, it was concluded that, if used wisely, artificial intelligence can enhance a person's capabilities, including critical thinking. However, unconscious use of artificial intelligence can harm a person and limit their mental development. This highlights the need to find ways for human critical thinking and AI to cooperate, allowing both humans and science to develop further. Considering the limitations of this descriptive study, it should be emphasised that the results require further analysis and expansion. Specifically, future research could focus on developing and testing the practical impact of AI on human thinking and on formulating a strategy for facilitating the interaction between critical thinking and AI.

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Conflict of Interest

The author of this study declares no conflict of interest.

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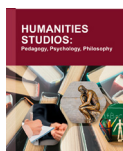
Критичне мислення та штучний інтелект: сучасні можливості взаємодії

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Анотація. Актуальність статті визначено необхідністю людського мислення орієнтуватися в світі інформаційних технологій, що ставить перед людиною виклики, які пов'язані з обробкою та аналізом інформації, що швидко розповсюджується, але не завжди ця інформація має істинний характер, часто це може бути фейк або маніпуляція. Мета статті полягала в дослідженні поняття «критичне мислення» в історичній ретроспективі, його практичного значення для сучасного світу та викликів, які постають для людини через розвиток штучного інтелекту. У статті було розглянуто питання розвитку технологій та пов'язана з цим цікавість до штучного інтелекту, разом з цим все більшої уваги заслуговує і мислення людини, і сама людина, яка стоїть перед викликами швидкого розвитку інформаційних технологій. Опираючись на сучасні дослідження в цій галузі, було узагальнено, що критичне мислення постає одним з головних навичок XXI століття, разом з комунікативними навичками та креативним мисленням. Хоча велика кількість людей і усвідомлює важливість критичного мислення, проте його популяризація потребує більших зусиль. У статті проаналізовано важливість критичного мислення та його практична корисність, що допомагає вдосконалюватися людському мисленню. Було також досліджено історико-філософські процеси формування мислення людини, а також методи його вдосконалення. Проте варто розглядати цю проблему і в контексті сучасного розвитку технологій, зокрема і штучного інтелекту. Саме тому були використані такі теоретичні методи, як узагальнення, аналіз та синтез для дослідження понять «критичне мислення» та «штучний інтелект», що дало змогу побачити можливості їх взаємодії на шляху до вдосконалення людського мислення, що є корисним як для дітей шкільного віку, так і для студентів, аспірантів та загалом для людей, що хочуть протидіяти маніпулятивним практикам сучасності. Загалом штучний інтелект може зашкодити розвитку людського мислення, але якщо його використовувати в поєднанні з критичним мисленням, то така співпраця може дати хороший продуктивний результат, що призведе до успіху людини у світі нанотехнологій, що швидко розвиваються

Ключові слова: знання; логічне мислення; ШІ; природа свідомості; свідомість людини; трансформаційні процеси; постсучасна наука



Psychological analysis of public figures: Ethical challenges and prospects

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Abstract. In the modern world, there is a growing risk of inappropriate leadership caused by psychological flaws in individuals who aspire to power. Therefore, society's caution against granting power to politicians who demonstrate psychological signs of dangerous personality traits is becoming increasingly relevant. The article aimed to identify the conceptual basis for resolving the main ethical dilemmas regarding the expert evaluation of the psychological characteristics and states of political figures. The article examined the ethical contradictions associated with public commentary by psychologists and psychiatrists on the personality traits and mental state of political leaders without informed consent and direct examination. The focus was on the Goldwater Rule, which prohibits professionals from commenting on the mental health of public figures based solely on publicly available information. The position of the American Psychiatric Association (APA) on the strict prohibition of commenting was analysed, as were the arguments of critics of this position, who point to the transformation of the professional role of specialists and the civic duty to warn of danger. It was shown that the debate between supporters and opponents of the Goldwater Rule is based on a conflict between two basic ethical principles: non-maleficence (avoidance of harm) with regard to the individual politician as a vulnerable client, and beneficence (creation of good) with regard to society as a collective client that must be informed about potential threats from leaders. At the theoretical level, the conflict was extrapolated to the contradiction between utilitarian and deontological ethics. The need for ethical pluralism as a way of resolving this conflict is highlighted. Thus, in the modern context, strict adherence to Goldwater's Rule does not always serve the public good. Ethical regulation should be based on weighing principles, contextual assessment of threats, and professional responsibility to both the individual and society. The results of this work can be used by professional communities of psychologists, psychiatrists, ethics committees, and media experts to develop regulations that balance the ethical responsibility of professionals to society and public figures in the evaluation of the psychological risks of political leadership

Keywords: Goldwater Rule; ethical dilemma; mental health; public danger; inappropriate leadership

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Introduction

Assessing the personality, mental states and behaviour of public figures, especially politicians and statesmen, is as much in demand as it is controversial from an ethical point of view. In political psychology, there is a strong tradition of exploring the psychological roots of political upheavals and catastrophes, including world wars, through the prism of the psychopathology of leaders and their followers (Adorno *et al.*, 1950; Arendt, 1963; Fromm, 1973). This tradition has been actively developing in the current conditions of political turbulence and actualised military threats (Hogan *et al.*, 2021; Uysal *et al.*, 2022).

According to S. Kamara *et al.* (2024), M. Maskor *et al.* (2021) and M. Hassan *et al.* (2022), the need to use psychological knowledge to overcome the consequences of political crises caused by inappropriate (or openly destructive) leadership, and ideally to prevent their occurrence, seems quite obvious. Meanwhile, the risks of uncontrolled and irresponsible use of expertise on the psychological suitability of a particular politician in a dishonest struggle for power were no less obvious (Sanchez & Dunning, 2023). The contradiction between the public need for proper leadership and the vulnerability of modern societies to the manipulation of important information remains fundamentally unsolvable. One way to resolve this dilemma is through ethical regulation of the activities of mental health professionals in providing expert assessments of public figures. In 1973, the American Psychiatric Association added Section 7.3 to its Ethics Code. This clause, better known by its unofficial name, the “Goldwater Rule”, has been the subject of heated debate in the American professional community and far beyond due to concerns raised by Donald Trump’s presidency among psychiatrists, psychologists, and other mental health professionals (Lee & Glass, 2018). This debate is still far from over.

In Ukraine, no such systematic discussions take place, although regulating the circulation of information about the mental state, personality and behavioural manifestations of political

leaders and other public figures (in particular, war heroes) is extremely relevant. The psychological fitness of the country’s military and political leadership in a full-scale war can be a factor in the resilience or, conversely, the vulnerability of society to hostile information attacks, and at the same time, a component of the collective ability to accurately assess the challenges and threats associated with inadequate leadership. Psychologists, psychiatrists, and other mental health professionals actively express their assessments of the personality traits and psycho-emotional state of the leaders of Ukraine and other countries, including the aggressor country, to the general public (Lashchenko, 2019; Sokyrchuk, 2021; Kmetyk, 2024). The Ethics Committee of the National Psychological Association (NPA) also receives relevant inquiries from time to time. At the same time, within the Ukrainian professional community, the ethical acceptability of such statements is not clearly defined or agreed upon. Therefore, the aim of this article was to identify the main ethical dilemmas in the professional activities of psychologists related to the expert evaluation of the psychological characteristics and states of politicians and other public figures, as well as to determine the conceptual basis for resolving such dilemmas.

Theoretical Review

The Goldwater Rule got its name from an incident that occurred during the 1964 US presidential election involving Republican candidate Barry Goldwater. The editors of the well-known journal *Fact* sent a questionnaire to all registered psychiatrists in the United States with a single question: “Do you consider Barry Goldwater psychologically fit to serve as President of the United States?” (Martin-Joy, 2020). Of the more than 12,000 specialists, 2,417 responded, of whom 1,189 declared Goldwater unfit for the presidency, 657 recognised him as mentally healthy, and 571 stated that they could not give an objective answer. Based on these responses, a special issue of the journal was published (Ginzburg, 1964).

The 38-page issue featured psychiatrists' opinions on the Republican candidate's psychological instability, paranoia, and narcissism, illustrated with caricatures of him (Fig. 1). The issue had a circulation of 236,000 copies and was released just before Election Day (Martin-Joy, 2020).



Figure 1. Illustration to the article “The unconscious of a conservative: A special issue on the mind of Barry Goldwater”

Source: R. Ginzburg (1964)

Barry Goldwater lost that election. And although it is impossible to establish a causal link between the publication of psychiatrists' opinions on the politician's mental state and the number of votes cast for his rival, Democratic Party candidate Lyndon Johnson, this case is considered in scientific and popular literature as an example of inappropriate and unethical interference by psychiatric expertise in political competition. Goldwater's lawyers filed a lawsuit against the editor-in-chief of the journal, Warren Buronson, and the author of the project, Ralph Ginzburg, for libel and won, securing a USD 75,000 fine against

the publication. One of the compelling arguments for the court was that Ginsburg had substantially edited the conclusions provided to him by psychiatrists to create a more convincing impression of Goldwater's psychological unsuitability for the presidency. Thus, the unethical nature of this incident is related more to the editor's position than to that of the psychiatrists, who only answered the questionnaire with a vague (or no) idea of how their answers would be used. Nevertheless, the ethical regulations for professional activity introduced as a result of this case primarily affected the psychiatric community. B. Lee (2021) points out that formally, the regulations apply only to members of the American Psychiatric Association, who are required to adhere to the Association's Code of Ethics, including section 7.3, which calls for refraining from remote diagnosis or “tabloid psychiatry”. Informally, a wider range of professionals, including those in other countries, have been guided by Goldwater's Rule in their work.

However, despite all this, Goldwater's Rule has been in a kind of “dormant” state for a long time (Lee, 2021). Psychiatrists and other mental health professionals actively participated in public discussions about the mental states and personality traits of politicians (Frank, 2011). Everything changed after the Republican Party nominated Donald Trump as its candidate for President of the United States in 2016. Mental health professionals began to express concerns about Trump's mental fitness, pointing to traits such as grandiosity and lack of empathy (McAdams, 2016; Carey, 2016). On 16 March 2017, amid heated debate about President Trump's threatening behaviour and the legitimacy of discussing it publicly (Dodes & Schachter, 2017; Herman & Lifton, 2017), the American Psychiatric Association's Ethics Committee published a commentary on the Goldwater Rule, which effectively prohibited professionals from commenting on the mental states and personality traits of public figures, even in general terms (APA, 2017).

O. Gorshkalova & S. Munakomi (2025) noted that part of the American psychiatric community

expressed categorical disagreement with the APA's position, initiating a conference dedicated to the "Duty to Warn", which obliges specialists to breach confidentiality in cases where there is a threat to the life or health of a client. That same year, a collection of essays entitled "The Dangerous Case of Donald Trump: 27 Psychiatrists and Mental Health Professionals Assess the President" was published (Lee, 2017). In October 2024, an open letter signed by 233 mental health professionals was published, stating that Donald Trump shows signs of malignant narcissism and poses a threat to the existence of democracy (Smith, 2024). It should be noted that at the time of writing (May 2025), the full text of the letter has been removed from public access. The debate over the ethical appropriateness of such behaviour by mental health professionals has reignited, indicating that there is no definitive consensus among the professional community on this issue.

Materials and Methods

The study was conducted in the form of a qualitative thematic analysis of scientific, professional and journalistic sources devoted to the ethical aspects of public psychological commentary on the personal characteristics of political leaders. The scientific method underlying the study was thematic analysis, as this method allows for the identification of consistent motives, ideas and concepts of scientists and practitioners in the field of mental health who are voluntarily involved in the process of expert assessment of political and social risks associated with inappropriate leadership. Thematic analysis was used to identify the main ethical dilemmas that arise in connection with the assessment of the mental health of public figures without their consent and without personal contact. As part of this analysis, a systematic review was conducted of the official position of the American Psychiatric Association (APA), in particular the Code of Ethics (APA, 2013) and statements by members of the Ethics Committee (APA, 2017); legal and professional commentary, including ethical standards and positions of

other industry associations; arguments of psychiatrists critical of Goldwater's Rule, in particular the authors participating in the collection "The Dangerous Case of Donald Trump..." (Lee, 2017) and articles in periodicals of a socio-political (The New York Times, Politico Magazine) and professional psychology (Psychology Today); philosophical-ethical and bioethical concepts, such as utilitarianism, deontology, ethical pluralism (Beauchamp & Childress, 1979), the concept of the "collective client", and client vulnerability.

The following types of sources were used: academic works discussing the application of the so-called Goldwater Rule in the contemporary practice of psychologists and psychiatrists; official documents of the APA and other professional associations of psychologists and psychiatrists; articles from leading media outlets, including The New York Times; websites of professional associations and ethics committees; methodological materials on ethics (Beauchamp & Childress, 1979). No quantitative methods or tools were used in the article, but the study was based on generally accepted approaches to qualitative analysis in the field of ethics and psychology. The analysis made it possible to identify the main ethical dilemmas underlying the debate on the ethics of assessing the mental states and personality traits of public figures, as well as to outline ways to resolve these dilemmas.

Results and Discussion

As a result of studying academic, journalistic, and regulatory sources, arguments were identified both from specialists who defend the need to apply the Goldwater Rule in modern conditions, even in its stricter form, and from those who demand a substantial revision of this Rule, up to its complete abolition. The systematisation of the collected arguments made it possible to conclude that the discussion surrounding the Goldwater Rule is based on an ethical dilemma in which conflicting professional ethical precepts are manifested. The solution to this dilemma must be based on a clear understanding of the

philosophical and methodological foundations of ethical regulation of the activities of mental health professionals.

Application of the Goldwater Rule in contemporary practice: *Pro et contra*

In 2017, the American Psychiatric Association published a separate commentary with a detailed answer to the question “Can a psychiatrist express an opinion about a public figure if the psychiatrist sincerely believes that this person poses a threat to the country or national security?” (APA, 2017). The APA’s official position is that providing a professional opinion about a public figure (including generalised judgements about their emotional state, behaviour, speech or other manifestations, or even statements about the absence of any illness in that person) based solely on publicly available information, without conducting an examination, is a violation of professional ethics. The APA argues that commenting on public figures violates, first, the principle of informed consent of the client to undergo an examination. The second principle, which the APA considers to be violated, is the requirement to responsibly adhere to research procedures and protocols and to maintain high standards of professional practice. Finally, the third argument in favour of the APA’s tough stance on psychiatrists commenting on public figures is that such actions can increase the stigma surrounding mental disorders and undermine patients’ trust in professionals. In turn, mental health professionals who oppose the APA’s position consider the strict ban on public statements to be excessive and irrelevant to modern realities, citing six arguments.

1. Modern psychiatric diagnosis goes beyond personal conversation. One of the strongest criticisms of Goldwater’s Rule is based on the fact that approaches to psychiatric diagnosis have changed significantly since its adoption. From now on, attention is increasingly focused not only on personal interviews with patients, but also on the analysis of behavioural patterns, context and social information. Researchers J. Kroll &

C. Pouncey (2016) and B. Lee (2021) directly question the absolute necessity of a personal interview for making a valid diagnosis. They emphasise that there are no convincing empirical or theoretical grounds to justify such a requirement. Moreover, as A. McLoughlin (2021) points out, video recordings involving public figures, their public speeches, and official documents can be a sufficient source of diagnostic information. Thus, in an open information society, psychologists and psychiatrists have free access to significant amounts of diagnostically valuable information, which allows specialists to be no less accurate in assessments than in the case of clinical interviews. Psychiatric terminology now actively used in public discourse and journalism – it is no longer exclusively a clinical tool (Pouncey, 2017).

2. Commenting on public behaviour is not diagnosis in the narrow sense. Several authors emphasise that public assessment of a politician’s behaviour is not equivalent to a formal medical diagnosis. A. Pillay (2018) distinguishes between these concepts, emphasising that diagnosis is a clinical procedure carried out within a specific doctor-patient context, with a specific purpose (primarily treatment). If a mental health professional analyses publicly available data without establishing a therapeutic contract, this is not a medical service but social communication. A. McLoughlin (2021) supports this position: commenting on open sources does not create a doctor-patient relationship and therefore does not fall under the same ethical restrictions.

3. The goal is not to diagnose illness, but to warn of danger. It is very important to distinguish between the goals of public statements made by specialists. J. Gilligan (2017) formulated a key thesis: “the problem is danger, not mental illness.” Psychologists and psychiatrists have not only a duty to treat, but also a duty to warn. This principle has long been rooted in clinical practice, but it needs to be adapted to a broader social context. B. Lee & L. Glass (2018) argue that talking about the mental state of a public leader is not an act of diagnosis, but the fulfilment of an ethical and civic mission.

4. A professional is also a citizen: restricting the right to free speech is a restriction of civil liberties. Goldwater's Rule, in its modern interpretation, does not simply restrict professional practice – it interferes with the civil liberties of psychiatrists, according to L. Glass (2018). Psychiatrists, like any other professionals, have the right to express their views on issues that concern the public good – in particular, on the behaviour of leaders who have an impact on national security, democracy and social cohesion. A. Pillay (2018) draws attention to a broader approach to the professional role: formulating public opinion on observed behaviour is part of a specialist's social contribution to society.

5. Psychologists are not psychiatrists: the ethical framework for psychologists' public activity in the political arena remains unspecified. Unlike psychiatrists, psychologists do not have clearly defined ethical standards regarding public comments about political leaders. The Canadian Psychological Association's Code of Ethics (Canadian Psychological Association, 2017) offers valuable guidance. Principle IV, "Responsibility to Society", explicitly states the obligation to act in the interests of the community. According to this principle, psychologists should provide socially relevant information to groups and individuals who have the power to influence social policy. The Model Code of Ethics of the European Federation of Psychological Associations (EFPA) establishes a broad definition of "client" that includes everyone with whom psychologists interact on a professional basis – individuals, couples, families, educational institutions, organisations and institutions (including courts). "Psychological science and practice serve the well-being of people, therefore, psychologists have a professional and scientific responsibility to society as a whole" (EFPA, 2022). In general, as noted by A. Pillay (2018), professional codes of conduct for psychologists do not yet provide direct answers regarding the possibility of ethically justified participation in public discussions about leaders, which creates a gap in regulation. This highlights the need for professional associations to publicly express their position.

6. Conflict between the duty to maintain confidentiality and the duty to warn (Duty to Warn..., 2017). Critics of Goldwater's Rule sum up the argument in a fundamental ethical dilemma: which is the greater good – maintaining confidentiality for an individual or informing society for the greater good? A. Pillay (2018) asks a rhetorical question: does an engineer have the right to silently pass by a bridge with obvious signs of dangerous damage? Similarly, mental health professionals who notice public signs of danger in the behaviour of leaders have an ethical duty to speak up, even if it goes beyond their narrow clinical role.

B. Lee & L. Glass (2018) emphasise that the mental state of the president affects the entire country. Silencing obvious threats is not a neutral position, but potential complicity in the consequences. It is worth noting that in its commentary, the APA (2017) clearly states that psychiatrists' desire to serve the interests of national security or social stability must be subordinate to the demands of the relevant official bodies, services and institutions. Anything that a psychiatrist does on a voluntary basis should not be positioned as a "professional assessment".

Ethics of a psychologist in public space: Between beneficence and non-maleficence

The classic work by T. Beauchamp & J. Childress (1979) describes four basic principles of ethics: beneficence, non-maleficence, autonomy, and justice. The authors insist that these principles are not hierarchically organised and may conflict with each other, requiring their careful coordination in specific moral situations. This idea is particularly relevant in the current debate surrounding the Goldwater Rule. On the one hand, the principle of non-maleficence obliges the specialist not to harm a specific person, in this case a public figure (politician), who may suffer reputational or psychological damage as a result of a public psychiatric assessment carried out without his/her consent and examination. On the other hand, the principle of beneficence calls for action for the common good, in particular to warn of the

potential harm that a politician with certain psychopathologies, such as impulsiveness, aggressiveness or lack of empathy, may cause to society.

T. Beauchamp & J. Childress (1979) do not give clear priority to any of the principles, but recognise that moral argumentation must be based on contextual weighing. In the case of Goldwater's Rule, this means that in a situation of threatening behaviour by a leader that has the potential to cause mass harm (e.g., launching military action, violating democratic order), preference may be given to beneficence as a reasonable duty to society. A similar logic is presented by the authors of the book "The Dangerous Case of Donald Trump..." (Lee, 2017), for whom the duty to warn society about danger in a specific context (the presidency of Donald Trump) is a more compelling ethical basis than the duty to maintain confidentiality regarding a specific politician and to value his autonomy and dignity. At the same time, one should not forget about the danger of the unscrupulous use of professional information in political competition, as well as the unconscious influence of political biases on the objectivity of professional judgements, which can significantly reduce or completely negate the ethics of beneficence (Samuels, 2021). Thus, the contradiction between the two principles in this case is not a defect of ethics, but rather demonstrates its function as a mechanism for the moral resolution of complex and often tragic dilemmas. In this sense, the balancing and specification model developed by T. Beauchamp & J. Childress (1979) in their theory provides a useful tool for justifying the positions of both those who support the Goldwater Rule and those who question it for the sake of the public good. The debate over the ethics of applying the Goldwater Rule also clearly reveals a conflict between the rights of two types of mental health professionals' "clients": the public politician as an individual and society as a collective entity.

The politician as a vulnerable client: researchers should take into account the particular vulnerability of political elites, viewing them not as omnipotent subjects, but as subjects who may

be exposed to serious risks from unlawful interference (Naurin & Öhberg, 2019; Chaplinska & Kravchenko, 2020; Traianou, 2024). In this context, public politicians are similar to all groups that are traditionally considered vulnerable due to the possibility of unethical influence or stigmatisation. As A. Traianou (2024) notes, "ethical challenges arise precisely when a researcher (or expert) resorts to assessments without the consent of the subject, even if that subject occupies a privileged position in the social hierarchy". Obviously, it was almost impossible to obtain the consent of such a client to disclose psychological or psychiatric assessments that are potentially extremely sensitive to political reputation.

Society as a client: at the same time, society can also be viewed as a client, especially in the context of psychological responsibility for protecting the public good. For example, the EFPA Code of Ethics (2022) emphasises that psychologists are responsible not only to individual clients but also to society when there is a potential threat to the safety or rights of others. A similar position is taken by the Canadian Psychological Association (CPA), which states that sometimes a professional has the ethical right (and sometimes the duty) to breach confidentiality or disregard consent when it comes to preventing serious harm to others (CPA, 2017). In this case, the difficulty lies in the fact that society does not have a single mechanism for referring to mental health professionals with a request for an assessment of political leaders. This makes it difficult to obtain "informed consent" from the collective client. Psychologists are forced to act at their own discretion, risking violating one of the basic principles - either non-maleficence towards the politician or beneficence towards society.

Some theoretical approaches to resolving ethical conflicts

Thus, in the context of Goldwater's Rule, not only an ethical dilemma arises, but also a conflict between two systems of loyalty - to the individual client and to the public interest. Contemporary

ethical literature does not offer a clear solution to this conflict. The contradictions between avoiding harm to an individual politician and creating good for society, as well as the problem of distributing professional responsibility between the “individual” and “collective” client – can be partly interpreted within the framework of utilitarian ethical theory, although it also contains elements of a deontological approach (Rachels & Rachels, 2018).

Utilitarianism evaluates the morality of actions based on the consequences – in particular, whether a particular action contributes to maximising the well-being of the greatest number of people. Public disclosure of a leader’s potential psychopathological danger may harm a specific person (politician), but at the same time prevent much greater harm that his decisions may cause to society – war, authoritarianism, social disintegration, etc. Thus, beneficence in the form of protecting public welfare may prevail over non-maleficence when it comes to preventing mass risks (Glass, 2018). In contrast, the deontological approach emphasises the immutability of moral obligations, regardless of the consequences. From this perspective, refraining from public diagnosis without consent is a categorical imperative linked to respect for personal autonomy. Even if a politician has power and publicity, they do not lose their status as a person with the right to privacy, protection of reputation and fair treatment. As A. Traianou (2024) points out, the political elite is a vulnerable group, given the public visibility, constant scrutiny and political competition. This means that non-contractual diagnosis can violate their dignity.

The aforementioned contradictions between the two ethical theories are subject to reconciliation through the principles of ethical pluralism. Ethical pluralism (Beauchamp & Childress, 2019) recognises that none of the principles has absolute priority and that professional ethics involves weighing them up depending on the context. In this approach, the individual client (politician) has the right to non-maleficence – that is, protection from psychiatric or psychological assess-

ment that could damage their reputation without good reason. The collective client (society) has the right to beneficence – that is, to receive information about the potential danger from a leader who exhibits malignant personality traits. Depending on the degree of threat to society, priority may temporarily shift from the individual to the collective client, but only if the expert is transparently identified as a specialist; the position is well-reasoned and based on evidence rather than political assessments; and the wording is balanced and cautious, without stigmatisation.

Conclusions

Goldwater’s Rule undoubtedly has historical and professional value. However, contemporary practice, science, social needs, and the civil rights of specialists require a critical rethinking of it. Contemporary ethical discourse has revealed a fundamental dilemma between two principles: non-maleficence (avoiding harm to an individual politician) and beneficence (creating good for society). This contradiction is not a sign of weakness in ethics; on the contrary, it requires its application as an instrument of moral deliberation. In complex conditions of high social risk, priority may temporarily be given to beneficence, but only on the condition of reasonableness, professional integrity and avoidance of stigmatisation. Also at the centre of the debate is the conflict of interest between the individual and collective “client” of the mental health professional. As a public figure, politicians need protection from non-contractual interference, but society also has the right to reasonable information in cases of potential danger. This conflict requires not strict prohibitions, but ethical flexibility and regulation. The analysis concluded that ethical decisions faced by mental health professionals in connection with their public participation in assessing the behaviour and mental state of political leaders are complex and ambiguous. The discussion of the Goldwater Rule intersects several dimensions – professional ethics, civil law, politics, and media communication – each of which carries both risks and opportunities.

On the one hand, professionals cannot neglect moral obligation to act in the interests of public safety, especially when leaders show signs of posing a potential threat to democracy, public order or international stability. On the other hand, the uncontrolled use of psychological expertise in the political arena can easily become a tool for manipulation, stigmatisation or the destruction of a political opponent's reputation. Contemporary ethics requires not strict prohibitions or unlimited freedom, but a balanced model of professional responsibility that recognises both the value of confidentiality and the duty to warn of danger. Such a model should take into account the context of the situation and the level of public threat; the form and content of public statements; the professional status of the speaker; the presence or absence of an agreed collective assessment mechanism; and the degree of public demand for such expertise.

In the future, there will be a need to create institutionalised, transparent and collegial formats for ethical expertise on the psychological characteristics of public leaders in crisis situations. It is also necessary to expand scientific research

that will study the impact of public psychological assessments on public opinion, democratic trust and political behaviour. At the same time, professional codes of ethics must clearly recognise society as a legitimate beneficiary of psychological science and practice. Thus, the discussion of the public role of psychologists is not reduced to a choice between silence and stigmatisation. It is about finding a responsible way to be useful – professionally, thoughtfully and with dignity.

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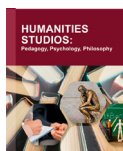
Психологічний аналіз публічних діячів: етичні виклики і перспективи

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Анотація. У сучасному світі зростають ризики неналежного лідерства, спричинені психологічними вадами осіб, що претендують на владу. Отже, застереження суспільства від надання влади політикам, які демонструють психологічні ознаки небезпечної особистості, набуває дедалі гострішої актуальності. Стаття націлена на ідентифікацію визначення концептуальних засад розв'язання основних етичних дилем щодо експертного оцінювання психологічних характеристик і станів політичних діячів. У статті було досліджено етичні суперечності, пов'язані з публічним коментуванням психологами, психіатрами особистісних рис і психічного стану політичних лідерів без інформованої згоди та безпосереднього обстеження. У центрі уваги – «правило Голдватера», яке забороняє фахівцям висловлюватися щодо психічного здоров'я публічних осіб на підставі лише загальнодоступної інформації. Проаналізовано позицію Американської психіатричної асоціації (APA) щодо жорсткої заборони на коментування; та аргументи критиків цієї позиції, які вказують на трансформацію професійної ролі фахівців та громадянський обов'язок попередження небезпеки. Показано, що в основі дискусії між прихильниками і супротивниками правила Голдватера лежить конфлікт двох базових етичних принципів: non-maleficence (уникнення шкоди) щодо індивідуального політика як вразливого клієнта та beneficence (створення блага) щодо суспільства як колективного клієнта, що має бути поінформованим про потенційні загрози з боку лідерів. На теоретичному рівні конфлікт екстрапольовано на суперечність між утилітаристською та деонтологічною етикою. Актуалізовано потребу етичного плюралізму як способу врегулювання зазначеного конфлікту. Отже, у сучасному контексті жорстке дотримання правила Голдватера не завжди служить суспільному благу. Етичне врегулювання має ґрунтуватися на зважуванні принципів, контекстуальній оцінці загроз і професійній відповідальності як перед індивідом, так і перед суспільством. Результати цієї роботи можуть бути використані професійними спільнотами психологів, психіатрів, етичними комітетами та медіаекспертами для розроблення регламентів, які врівноважують етичну відповідальність фахівців перед суспільством і публічними особами під час оцінювання психологічних ризиків політичного лідерства

Ключові слова: правило Голдватера; етична дилема; психічне здоров'я; суспільна безпека; неналежне лідерство



Main directions of research in modern management acmeology

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Abstract. The relevance of the topic is determined by the need to adapt management processes to new challenges of digital transformation, the dynamics of the social environment, and the demand for effective training of future specialists. The aim of the study was to identify leading acmeological trends that ensure the professional development of an individual in contemporary society. The article examined the main directions of development of modern management acmeology as an interdisciplinary field that combines knowledge from psychology, pedagogy, and management sciences. The research employed methods of comparative analysis of scientific sources, systematisation of modern approaches, and content analysis of relevant publications. The research results allowed for the identification of four main directions of modern management acmeology: digital transformation of management practices; professional growth through acmeological approaches in education; integration of psychological and pedagogical approaches in the context of professional self-realisation; and the acmeological approach in the secondary education system. Each direction covered specific problem areas: from the formation of acmeological competencies in future educators and managers to the study of the influence of organisational culture on individual self-realisation. Special attention was paid to the implementation of acmeological technologies in secondary and higher education, the development of internal motivation, reflection, self-organisation, and responsibility, which were the main criteria for professional development. The practical value of the work lies in formulating recommendations based on the analysis of the four identified main directions of development of modern management acmeology, which allowed for the effective realisation of the potential of the acmeological approach in the educational environment. The research results can be used to improve educational programmes, develop innovative methods for training a new generation of leaders, and foster management thinking that meets the challenges of the 21st century

Keywords: acmeological approach; digital transformation; professional growth; integrated approach; professional self-realisation

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Introduction

In modern conditions of globalisation, digital transformation, and the increasing role of human capital, interest in management acmeology is growing as an interdisciplinary field that studies ways to achieve personal and professional acme for a leader. This area of scientific inquiry combines achievements in psychology, pedagogy, and management sciences, allowing for the formation of a holistic understanding of a leader's personal development, their ability for strategic thinking, self-realisation, adaptation to complex changes, and reaching the pinnacle of professional excellence. However, despite the growing number of studies in this field, there is fragmentation in the coverage of approaches, limited consistency of results, and a lack of critical analysis of their context. In the works of S. Nosratabadi *et al.* (2020) and F. Ciampi *et al.* (2021), the strategic development of a leader and the need for forming an acmeological management culture in changing conditions are highlighted. However, both studies are limited in their empirical aspect: the first is based primarily on theoretical modelling, the second on a limited sample of private sector managers, which complicates the generalisation of results. In these conditions, management acmeology acts as a methodological basis for researching and forming such qualities in future managers.

In the field of educational management, the research by T. Shanskova (2021) and Y. Sokol & O. Ponomariov (2023) demonstrates the interrelationship between the effectiveness of institution management and the level of a leader's personal development. At the same time, the authors do not pay due attention to comparing acmeological models applied in different types of educational institutions and almost do not analyse external factors (organisational culture, digital readiness, etc.). The issue of implementing acmeological technologies in professional training is highlighted in the works of M. Yevtukh & T. Skoryk (2020) and S. Henkal (2021); however, these studies primarily focus on the pedagogical context and do not consider the broader

management space. The experience of the military sphere, presented in the works of A. Shabal'dak (2020), O. Boiko (2020), and O. Didenko & S. Shumovetska (2021), demonstrates the effectiveness of acmeological approaches in a strictly regulated environment, but raises doubts about the applicability of the obtained conclusions to more flexible management systems. Of particular note is the study by Y. Shrestha *et al.* (2021), which raises the important problem of integrating digital technologies and artificial intelligence into management practices. However, methodologically, the study focuses on potential benefits without a deep analysis of the challenges associated with implementing such innovations in the context of acmeology. Analysis of existing research allows for the identification of several main problems: insufficient consistency of terminology, limited cross-sectoral comparisons, a narrow empirical basis, and insufficient attention to the digital dimension of acmeological dynamics. These scientific gaps indicate the need for a comprehensive interdisciplinary analysis that combines psychological, pedagogical, and managerial approaches.

The relevance of the research lies in the need for systematisation and analytical rethinking of modern approaches to management acmeology in changing conditions. The aim of the article was to conduct a critical analysis and classification of the main directions of modern research in the field of management acmeology. The research objectives were: to conduct a systematic review of relevant publications, identify leading trends, and outline promising directions for further research. The scientific novelty consisted in identifying the main directions of modern management acmeology, taking into account contextual features, analytically comparing scientific approaches, and identifying interdisciplinary growth points.

Materials and Methods

The study of the main directions of modern management acmeology was carried out using a

comprehensive methodology, which involved a combination of theoretical analysis, qualitative methods, and an interdisciplinary approach. The sequence of the study consisted of two main stages: analytical and generalising, each based on the use of defined methods and sources. The primary material for analysis included scientific articles, analytical reviews, and open-access publications dedicated to the issues of management acmeology. Sources published between 2020 and 2025 were selected, particularly from Scopus, Web of Science, Google Scholar databases, as well as from Ukrainian professional publications indexed in scientific-metric systems. The selection criteria for sources included: thematic relevance, availability of empirical data, methodologies applied, interdisciplinary approach, and peer-review status of publications.

In the first, analytical stage, a content analysis of publications was conducted to identify the main theoretical and methodological approaches to management acmeology. Particular attention was paid to works reflecting its application in the context of education and management. A comparison of authors' approaches to forming acme-competencies and an assessment of the consistency of results were carried out, revealing discrepancies in methodology – specifically, varying levels of empirical basis, inconsistent operationalisation of concepts, and the absence of long-term measurements. In the second, generalising stage, methods of systemic analysis, classification, and typologisation of existing research were applied. Based on the previous stage, a typology of the main research directions in modern management acmeology was formed, identifying four main vectors: digital transformation of management practices; professional growth through acmeological approaches in education; integration of psychological and pedagogical approaches in the context of professional self-realisation; and the acmeological approach in the secondary education system. Comparing the results of various studies allowed for the identification of scientific gaps, including the lack of research on digital acmeology

in the public sector, insufficient longitudinal studies on the effectiveness of acme-approaches, and unclear indicators of professional acme.

The use of content analysis was justified by the need for a structural understanding of a large volume of scientific information. The typologisation method allowed for the identification of structural regularities in the development of acmeological knowledge. The application of elements of acmeological modeling provided an understanding of potential trajectories for a leader's professional growth. The comprehensive methodological approach was determined by the interdisciplinary nature of the research subject – the intersection of psychology, pedagogy, management, and digital technologies. The sequence and logic of the study allowed for a holistic understanding of the state, trends, and contradictions of modern management acmeology, as well as substantiating directions for its further development.

Results and Discussion

As a result of the theoretical study, four main directions in the development of modern management acmeology were identified, reflecting the interdisciplinary nature of this field and its practical significance in various areas of professional activity. The identification of these specific directions is based on an analysis of the content of scientific sources from 2020-2025 and the author's comparative analysis of institutional practices for manager development in different countries worldwide.

The first direction is the digital transformation of management practices. Research has shown that the implementation of digital technologies, particularly Artificial Intelligence (AI) and algorithmic management, significantly influences the formation of new leadership models and organisational flexibility. This is confirmed by works that analyse the interrelationship between digitalisation and organisational agility, as well as studies that examine the impact of digital tools on management processes. This direction is one of the most dynamic in modern

management acmeology. It encompasses research on the impact of AI, digital strategies, and organisational flexibility on the development of managerial competencies and leadership models. S. Hossain *et al.* (2025) explored the concept of dynamic managerial capabilities in the context of AI. The authors conducted 20 semi-structured interviews to identify the main competencies of leaders in conditions of digital transformation. They identified three main components of digital leadership: technical, adaptive, and transformative abilities, which enable managers to effectively interact with AI and make strategic decisions in conditions of uncertainty. This aligns with the conclusion that the new generation manager must act as a digital facilitator, capable of managing not only people but also technological ecosystems.

From the perspective of empirical analysis, it is important to note that digital transformation is not merely a technical update of management tools; it involves a profound change in culture, leadership mentality, organisational behaviour, and decision-making logic. For instance, a study by B. Al-Nuaimi *et al.* (2022) showed that digital transformative leadership is closely related to the level of organisational flexibility. A practical example of this can be the implementation of ERP (Enterprise Resource Planning) systems, such as SAP S/4HANA or Oracle NetSuite, which integrate financial, logistics, and human resources functions into a single digital architecture. This allows managers to make real-time decisions, which is critically important for the functioning of modern organisations in a changing environment. Another example of digital transformation is the use of Big Data analytics in managerial decision-making processes. Companies that have integrated tools like Microsoft Power BI or Google Looker Studio demonstrate a higher level of adaptability due to their ability to identify consumer behaviour trends, supply chain risks, or internal organisational vulnerabilities. This also contributes to the formation of proactive leadership focused on preemptive strategies.

In the study by M. Madanchian *et al.* (2024), published in "Procedia Computer Science", the emphasis is placed on how the integration of AI changes traditional management practices. The authors note that AI contributes to the development of an adaptive, data-driven, and personalised approach to leadership. Specifically, through the use of chatbots (e.g., based on GPT), emotional recognition systems (like Affectiva or Realeyes), and predictive analytics, leaders have the opportunity to better understand team morale, ensure targeted communication, and predict the effectiveness of strategic decisions. The author's analysis indicates that digital transformation is not only a technological change but also an acmeological challenge for managers, as it concerns a new quality of professional development. An acmeological perspective involves not only acquiring digital skills but also fostering innovative thinking, the capacity for reflection, working with creative teams, managing interdisciplinary knowledge, and taking responsibility for the social consequences of technological solutions. Research in the first direction confirms that the digital transformation of management practices is an important vector of modern management acmeology. It requires the development of new managerial competencies, the adaptation of organisational structures, and the implementation of innovative leadership strategies. The key is not simply digital tools, but the leader's ability to harmoniously integrate them into the humanitarian and interpersonal context of management activities.

The second identified direction in the development of modern management acmeology is professional growth through acmeological approaches in education. Within this direction, the analysis of not only the effectiveness of educational technologies but also the transformations of a specialist's personality in the process of their professional development acquires particular importance. At the current stage of societal development, when knowledge becomes obsolete at an extraordinary rate, the ability for continuous self-development, adaptation, and integration of

new meanings into professional activity comes to the forefront. Experimental studies indicate the effectiveness of the acmeological approach in improving the professional skills of specialists in various fields of activity, where acmeological technologies contribute to the development of personal qualities, motivation for professional activity, and the ability for self-reflection. However, it is important to emphasise that at the core of this approach is not just the growth of professional mastery, but the formation of a personality who understands their mission, is capable of proactive action, and thinks strategically and value-driven. An analysis of the work by Z. Sharlovych *et al.* (2023), who conducted research in the field of postgraduate education for nurses, indicates a profound transformation of a specialist's motivational sphere under the influence of the acmeological approach. In particular, an increase in the significance of spiritual and moral values was recorded, which is critically important in professions involving helping others. This leads to the conclusion that acmeology not only develops technical competencies but also forms stable internal attitudes of a humanistic orientation, which ensure high professional ethics.

At the same time, generalising the materials from S. Kalaur's (2023) research, it can be assumed that the integrity of the acmeological approach – its psychological, pedagogical, and motivational components – ensures the sustainability of pro-

fessional development. It not only forms new professional competencies but also instils in an individual an internal demand for continuous improvement, which aligns with the principles of “lifelong learning”. Motivation for self-realisation acts not only as a goal but also as a condition for effective acmeological education. These conclusions also correlate with the results of research by L. Anarbek *et al.* (2025), which demonstrated the importance of an individual approach in the professional development of future educators. The revealed gender difference in the level of reflection and self-regulation suggests the need for differentiated educational strategies. It is here that acmeology demonstrates its advantage over traditional pedagogical methods: it is based on recognising the uniqueness of each individual's professional path, on purposeful work with internal attitudes, and not just with “technical” knowledge.

An example of using acmeological approaches in education can be AI-supported reflection – a 2024 study that showed that generative systems (LLMs) effectively structure students' reflective journals, stimulating critical thinking through individualised feedback. Quantitative data showed a significant increase in student engagement in the reflective process (Yuan & Jiazi, 2024). Examples of the potential of acmeological technologies and the promotion of their institutional changes are also provided in Table 1.

Table 1. Use of acmeological approaches in education

Technology		Example of use
1	Reflective journals	Interactive platforms (e-portfolios) that archive weekly analytics of experience
2	Online mentoring/coaching	Mentorloop/Chronus systems are used in the United States to track professional development
3	Simulation cases (VR)	VR models are used in the United Kingdom to develop leadership skills
4	AI support for reflection	LLM assistants analyse diaries and give advice to students through generative AI

Source: developed by the author

The generalisation of the results leads to the conclusion that the acmeological approach in education shapes the subject of professional

growth – not a passive consumer of knowledge, but an active integrator. This approach not only stimulates the development of cognitive skills,

but also transforms the system of values, worldview guidelines, styles of interpersonal interaction, and the ability to achieve professional autonomy. In other words, not only professional but also personal acmeological evolution takes place. In addition, acmeological educational technologies have the potential for institutional transformation of the training system. They allow the formation of educational programmes that are based not only on standards and results but also on processes of personal dynamics. The practical application of this approach is demonstrated in individualised educational trajectories, the use of reflective journals, coaching sessions, mentoring and dialogue-based forms of learning. Professional growth through acmeological approaches in education is a strategic direction in the development of modern personnel management. This is not just educational influence – it is the purposeful development of a personality capable of acting at the limits of their capabilities, in the context of dynamic changes and with a high level of personal awareness. Acmeology in education is becoming a mechanism for forming a new type of leader – mature, responsible, morally motivated, and professionally competent.

The third distinct direction in the development of modern management acmeology is the integration of psychological and pedagogical approaches, which provides interdisciplinary depth in the professional growth of the individual. At the intersection of these two fields, a productive field for the development of acmeological competencies is formed, which becomes a decisive factor in the professional growth of specialists in various fields. This is especially relevant in conditions of intense change, where the ability to adapt, self-develop and work in situations of uncertainty come to the forefront. Scientific research, in particular the study by G. Hako-byan *et al.* (2021), shows that the emergence of acmeology as a science is directly related to the integration of psychology, pedagogy and sociology. This is not just a mechanical combination of elements, but a synthesis of methodological

principles that makes it possible to build a systematic model of personal development in professional activity. It is important to emphasise that it is the psychological component – motivation, reflection, awareness of one's own professional path – that is the foundation on which pedagogical action in the field of adult vocational training is based.

The phenomenon of andragogy – adult education – deserves special attention, where the acmeological approach opens up new opportunities for taking into account the individual experience, needs and motivational attitudes of the personality. Given the challenges of the times, adult learners need not only knowledge but also tools for self-change. Therefore, the development of acmeological programmes based on psychological and pedagogical synthesis is not only expedient but also a necessary stage in the transformation of the vocational training system. In this context, it is worth referring to the study by T. Gumennykova *et al.* (2023), which shows the practical implementation of the integration approach in the context of globalisation challenges. The analysis shows that creating an educational environment where the individual is the main value is impossible without the synergy of pedagogy as the science of teaching and education and psychology as the science of the inner world of a person. In particular, the introduction of psychological support in educational institutions not only increases the effectiveness of learning, but also strengthens the emotional intelligence, level of professional responsibility and academic integrity of education system employees.

Another fundamentally important aspect is the development of acmeological competencies of future specialists while they are still in education. In this regard, the study by L. Anarbek *et al.* (2022) is particularly revealing, as it proved the effectiveness of combining distance learning with acmeological practices. The authors' analysis of the results of this experiment suggests that acmeology in online learning remains effective as long as a person-centred approach is

maintained. In other words, even through digital platforms, it is possible to successfully develop such important traits as self-reflection, responsibility, motivation to achieve, and readiness for professional self-realisation. A synthetic assessment makes it possible to formulate the following important points. First, the integration of psychology and pedagogy in acmeology is not optional or auxiliary; it constitutes the very essence of this scientific field. Secondly, it is through psychological and pedagogical mechanisms that the potential of acmeological development is realised: the formation of professional identity, the development of emotional intelligence, critical thinking, and the ability for continuous self-improvement. And thirdly, practice confirms that an interdisciplinary approach not only improves the quality of the educational process, but also provides long-term positive effects – increased professional stability, ethical responsibility, and internal motivation for growth.

The integration of psychology and pedagogy into acmeology management is not only scientifically sound, but also a practical necessity for the formation of modern specialists. In times of rapid change and labour market instability, interdisciplinarity becomes the key to flexibility and, consequently, to achieving the heights of professional mastery in acmeology. The third identified direction of development of modern management acmeology is characterised by a deep integration of social and psychological factors that shape the context of professional development of the individual. The analysis shows that no specialist functions in a vacuum – their professional development and self-realisation take place in a dynamic social environment, which is both a resource and a challenge. That is why, within the framework of acmeology, it is important to study not only the individual characteristics of a person, but also the social conditions that either contribute to the achievement of “acme” or block it. This direction requires a comprehensive approach to the analysis of the interaction of the motivational structure, emotional intelligence,

social maturity and the nature of social relations. In fact, in the process of achieving professional “acme”, a person realises themselves not only as a professional but also as a social agent – through roles, responsibility, communication, and decision-making in interaction with others. This necessitates reflection, self-assessment, the development of emotional and volitional stability, and the ability to behave constructively in conditions of uncertainty, which are the basic psychological prerequisites for managerial competence. The study by A. Breu & T. Yasseri (2023), which analyses the influence of individual psychological characteristics and the organisational environment on the formation of passion for work, only confirms the assumption about the importance of a dynamic socio-psychological balance. From the point of view of acmeology of management, it is especially important not only to identify the type of passion (harmonious or obsessive), but also to create an environment in which the former becomes dominant. Harmonious passion is not only emotional involvement, but also a sign that a person is at a point in their development where external conditions are consistent with their internal goals, values, thinking style, and behavioural patterns.

At the same time, managers and administrators must learn to recognise manifestations of obsessive passion, which are often disguised as “dedication to the cause” but ultimately lead to professional burnout and internal maladjustment. This requires the implementation of not only flexible management strategies, but also acmeologically oriented personnel development tools – coaching, mentoring, reflective sessions, case analysis, i.e., methods that combine psychological support with pedagogical influence. A positive example of the application of acmeological technology is AI Coach (Coaching Copilot) USA/Japan (pilot projects), which uses a combination of a chatbot (LLM) and a live coach. The system encourages self-analysis and helps to form a managerial vision. In particular, scientists note an improvement in participants’

self-confidence, their adaptive and transformational competencies through dialogues with an AI coach (Arakawa & Yakura, 2024).

Equally important is the concept of social maturity presented in the study by A. Omelchuk (2022). A resource-based approach to understanding social maturity as an integrative personality characteristic allows it to be taken beyond age-based developmental models. It has been proven that social maturity is not just the ability to interact, but a quality that ensures the functionality of the personality in a system of complex social relationships, particularly in conditions of high responsibility, multitasking and competition. This leads to an important methodological position: for the development of managerial competencies, it is not enough to rely solely on knowledge or organisational skills – socio-psychological attitudes, readiness for interpersonal interaction, emotion management, and decision-making in complex conditions are also important. Social maturity, therefore, is not a static characteristic, but a process that develops under the influence of educational, professional, and personal experience. Synthesising the results of the analysis, it has been proven that combining social and psychological approaches in acmeology of management allows for a comprehensive view of the formation of a new generation of specialists – independent, responsible, capable of reflection, flexible to change and resistant to stress. In practical terms, this opens up broad opportunities for the development of educational programmes, training courses and psychological tools aimed at developing social maturity, emotional intelligence and a harmonious type of passion for work. In turn, this creates the basis for achieving professional “acme” – the highest point of personal development in professional activity.

In modern conditions of global transformations, the educational environment acts as one of the basic spatio-temporal contexts for personal formation. The fourth direction of development of management acmeology, focused on integrating the acmeological approach into

the secondary education system, represents an extremely promising area of research. This approach not only expands the possibilities of school education but also creates a basis for forming the student as a subject of self-development and future professional self-realisation. One aspect of the acmeological approach is its focus on the development of personal qualities that form the basic competency framework for effective functioning in conditions of uncertainty, rapid changes, and multi-vector life scenarios. This refers to self-organisation, responsibility, critical thinking, goal-setting, and the ability to make independent decisions – these are precisely the characteristics that provide the foundation for the student’s further entry into the world of professional activity. In this context, secondary school ceases to be merely a source of knowledge; instead, it transforms into a platform for personal growth. Own observations and analytical work within the study provide grounds to assert that the acmeological approach in school must rely on three interconnected components: a developmental educational environment, psycho-pedagogical support, and the individualisation of educational trajectories. The direct participation of the student in choosing own learning path contributes to the growth of their responsibility and forms skills in self-analysis and reflection. An important condition for the implementation of this approach is the formation in educators not only of methodological but also of acmeological competencies, in particular, the ability to support students in their development as subjects of life activity.

The analysed study by N. Sydoruk (2022), which substantiates the need to include the course “Fundamentals of Acmeology” in the system of training future educators, only confirms the importance of acmeological thinking in the school process. However, acmeological principles should become pervasive – that is, they should be integrated not only into a separate course but into the entire pedagogical strategy of the school. Fundamental in this process is the concept of subjectivity: the student must not only

acquire knowledge but also form the ability to independently interpret, evaluate, and apply it. Thus, acmeological education is education aimed at the future, focusing not on standardised knowledge, but on the development of the individual as a strategic resource.

Modern digital transformations, as noted by N. Myronchuk (2020), open up additional opportunities for implementing acmeological approaches through ICT tools. Information and communication technologies are not only a technical means but also a powerful mediator of self-organisation (Semenovska *et al.*, 2023). Provided with proper methodological support, they allow the student to implement their own educational strategies, establish feedback, build an individual educational trajectory, and develop critical thinking through the analysis of large volumes of information. At the same time, the use of ICT requires educators to have a new level of readiness for digital pedagogy, and managers to be aware of digital practices as part of the educational institution's management culture. The study by S. Lytvynova (2018) demonstrates the promising nature of using computer modeling as a means of developing metacognitive and cognitive skills. It is considered not only as a tool for subject learning but also as a means of forming modeling thinking, which is fundamental to managerial activity. The ability to model a situation, predict its development, see alternatives and risks is critically important in the context of future career choice. Therefore, school education

should purposefully develop these skills as universal – regardless of the professional field the student gravitates towards. Based on the synthesis of the analysed sources and a conceptual vision, it can be stated that the acmeological approach in secondary education is not limited to the implementation of individual methods or courses. It is about the transformation of the educational paradigm itself, which should direct the student not only to successfully passing external examinations but to a successful, self-realised life. This is the strategic goal of modern education, which, within the framework of management acmeology, has gained a holistic understanding. In conclusion, we can state: the fourth direction of modern management acmeology has not only scientific but also applied significance. Its implementation in school education creates prerequisites for forming a new generation of specialists who are able not just to adapt to changes, but to independently initiate and effectively manage them. Thus, the acmeological approach acts not as an option, but as a necessity for the development of education aimed at a quality future. Based on the analysis of the four identified main directions of development of modern management acmeology, a holistic system of recommendations has been formulated, which allows for the effective realisation of the potential of the acmeological approach in the educational environment. A summarised table of recommendations for managers and educators is presented below (Table 2).

Table 2. Recommendations for realising the potential of the acmeological approach in the educational environment

No.	The field of management acmeology	Recommendations for managers	Recommendations for educators
1	Digital transformation of management practices	✓ Create a digital infrastructure for effective management (electronic document management, monitoring, online reporting). ✓ Implement digital tools for team collaboration and decision-making (Trello, Asana, Google Workspace). ✓ Systematically improve the digital competence of management.	✓ Actively use digital platforms in teaching (Zoom, Moodle, Google Classroom). ✓ Develop students' digital hygiene, self-organisation and critical thinking skills in the information environment. ✓ Maintain a digital portfolio and e-journal of personal growth.

Table 2. Continued

No.	The field of management acmeology	Recommendations for managers	Recommendations for educators
2	Professional growth through acmeological approaches in education	✓ Create institutional conditions for continuous professional development (coaching, mentoring, online communities). ✓ Integrate acmeological criteria into the internal staff evaluation system. ✓ Provide micro-education and individualised professional development paths.	✓ Introduce self-assessment and reflection journals. ✓ Develop professional mobility, adaptability and self-management skills. ✓ Participate in professional educational hubs and teacher associations.
3	Integration of psychological and pedagogical approaches in the context of professional self-realisation	✓ Provide support for the development of staff emotional intelligence (training, facilitation, psychological support). ✓ Build a system to support professional burnout and personal exhaustion. ✓ Foster a culture of trust, openness and constructive feedback within the organisation.	✓ Use pedagogical technologies that take into account the emotional state of students and teachers (empathic learning, dialogical practices). ✓ Work on your own emotional stability and work-life balance. ✓ Promote the formation of a sense of personal value and prospects for self-realisation in students.
4	Acmeological approach in the secondary education system	✓ Promote the implementation of acmeologically oriented educational programmes and projects. ✓ Ensure the individualisation of students' educational trajectories at the level of the educational institution. ✓ Support the creation of a learning environment that promotes initiative, leadership and self-realisation.	✓ Focus teaching on the development of students' basic acme competencies: goal setting, self-organisation, critical thinking. ✓ Use interactive methods that promote reflection and self-awareness (debates, project-based learning, portfolios). ✓ Promote the formation of personal goals and awareness of one's own life path.

Source: developed by the author

Even through digital platforms, it is possible to successfully implement acmeologically oriented integration of psychological and pedagogical approaches, if it is based on the principles of reflexivity, individualisation and the development of value-based self-determination of the individual. The application of such approaches contributes to the creation of an environment where managers not only master new management strategies, but also go through stages of deep personal growth, forming their own path to professional acmeology.

Conclusions

The article reveals the main directions of development of modern management acmeology as an interdisciplinary field that combines the achievements of psychology, pedagogy, and management sciences for a comprehensive study of professional development. A general analysis of recent studies has identified four leading areas: digital transfor-

mation of management practices; professional growth through acmeological approaches in education; integration of psychological and pedagogical approaches in the context of professional self-realisation; and the acmeological approach in the secondary education system. Thanks to its flexibility and interdisciplinarity, management acmeology in the context of secondary education is capable of synthesising psychological, pedagogical, social and managerial aspects, forming not just a functional performer, but a thinking, responsible and reflective personality. Acmeological approaches are particularly relevant in the digital age, when traditional learning models are losing their effectiveness and new formats require a high level of autonomy, adaptability and internal motivation.

It has been established that management acmeology effectively responds to the challenges of digital transformation and social change by offering new strategies for developing management

potential, forming professional competencies and supporting self-realisation. In particular, the feasibility of introducing acmeological technologies into the system of professional training of specialists and secondary education has been proven, which contributes to the formation of personal qualities, self-organisation, reflection, responsibility and goal-setting in students. The importance of socio-psychological factors, such as group dynamics, emotional intelligence, and organisational culture, in ensuring the effectiveness of management activities is also emphasised.

Thus, the results of the study confirm the high theoretical and practical significance of management acmeology in the context of the formation of a modern system of education and professional training. At the same time, the data obtained indicate the need for further theoretical and empirical research, in particular, the study of the impact

of digital environments on acmeological processes, the development of adaptive leadership models, and the expansion of tools for assessing acmeological competence in various professional fields. Promising areas of scientific research include theoretical and empirical analysis of the effectiveness of implementing the acmeological approach in various areas of professional activity, as well as research on gender, cultural and age aspects of management acmeology.

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Основні напрямки досліджень сучасної акмеології управління

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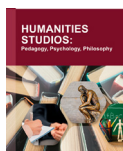
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Анотація. Актуальність теми зумовлена потребою адаптації управлінських процесів до нових викликів цифрової трансформації, динаміки соціального середовища та запиту на ефективну підготовку майбутніх фахівців. Метою дослідження було визначення провідних акмеологічних тенденцій, що забезпечували професійний розвиток особистості в умовах сучасного суспільства. У статті розглянуто основні напрями розвитку сучасної акмеології управління як міждисциплінарної галузі, що поєднує знання психології, педагогіки та управлінських наук. У процесі дослідження застосовувалися методи порівняльного аналізу наукових джерел, систематизації сучасних підходів, а також контент-аналіз актуальних публікацій. Результати дослідження дозволили виокремити чотири основні напрями сучасної акмеології управління: цифрова трансформація управлінських практик; професійне зростання через акмеологічні підходи в освіті; інтеграція психологічних і педагогічних підходів у контексті професійної самореалізації; акмеологічний підхід у системі середньої освіти. Кожен із напрямів охоплював специфічні проблемні поля: від формування акмеологічних компетентностей у майбутніх педагогів і управлінців до дослідження впливу організаційної культури на самореалізацію особистості. Особлива увага приділялась впровадженню акмеологічних технологій у середню та вищу освіту, розвитку внутрішньої мотивації, рефлексії, самоорганізації та відповідальності, що були основними критеріями професійного становлення. Практична цінність роботи полягала в формулюванні на основі аналізу чотирьох виділених основних напрямів розвитку сучасної акмеології управління рекомендацій, які дозволили ефективно реалізувати потенціал акмеологічного підходу в освітньому середовищі. Результати дослідження можуть бути використані для вдосконалення освітніх програм, розробки інноваційних методик підготовки керівників нового покоління та розвитку управлінського мислення, що відповідає викликам 21 століття

Ключові слова: акмеологічний підхід; цифрова трансформація; професійне зростання; інтеграційний підхід; професійна самореалізація



Philosophical and ethical dimension of death in Ambrose of Mediolanus' *De Bono Mortis*: Defining death as a good

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Abstract. The study aimed to analyse the interpretation of death as a moral and spiritual phenomenon that has a positive meaning for a believer. The study analysed the definition of death as a moral and spiritual phenomenon in early Christian theology, in particular through the teachings of Ambrose of Mediolanus. The study analysed the theological, philosophical and ethical aspects of the understanding of death in the Christian tradition, traces their connection with ancient philosophical doctrines, especially Stoicism and Neoplatonism, and compares them with modern bioethical concepts. The moral aspect of death as a means of purification, spiritual perfection and transition to eternal existence was addressed. The study determined that Ambrose of Mediolanus viewed death not only as an inevitable biological process but also as a necessary condition for the liberation of the soul from bodily passions and approach to God. One of the main conclusions was that the concept of death in the Christian tradition differs from secular and philosophical approaches in that it is defined not as the end of existence, but as a transition to true being. Ambrose emphasised that fear of death is a consequence of insufficient faith and moral immaturity and that proper spiritual preparation highlights it as a good. The study determined that such interpretation of death as a means of purification and return to God has parallels with Neoplatonic ideas about the soul, which must be freed from the material world to achieve a higher reality. The analysis of the historical context has shown that the concept of death in early Christian theology was formed at the intersection of ancient philosophical traditions and biblical ideas about life after death. The practical significance of the results obtained lies in the possibility of applying the concept of death developed by Ambrose in modern theological, philosophical and ethical discourse

Keywords: christianity; theology; eschatology; stoicism; asceticism; Neoplatonic ideas; morality

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Introduction

The problem of death and its understanding in the Christian tradition is one of the central themes of religious philosophy and theology. Death is traditionally seen not only as the biological end of human existence but also as a metaphysical transition to eternity. The study of this problem is relevant as it defines the main anthropological, ethical and spiritual aspects of human existence that determine the perception of death in different historical epochs. One of the most important theological texts analysing death as a phenomenon is the treatise *De Bono Mortis* by St. Ambrose of Mediolanus, in which death is interpreted as a good necessary for achieving eternal life. In the modern academic tradition, considerable attention is paid to the study of the understanding of death in Western Christianity (Mediolanus, 1509). M. Dolz (2023) studied the changing conceptions of death in different historical periods, emphasising the role of religious and philosophical concepts in shaping attitudes to this phenomenon. The analysis covered both medieval theological texts and contemporary discourses, which demonstrates the continuity of theological ideas related to death. The study highlighted the relationship between the Christian tradition and its perception of death in the context of moral improvement, which echoes the works of St. Ambrose. A similar approach was demonstrated by F. Ioanidis (2013), who examined the evolution of ideas about death in medieval Western Christianity, especially emphasising the importance of works such as *De Bono Mortis*. The study determined that death in the Christian worldview acquired not only eschatological significance but also became a means of moral improvement. According to the conclusions, the concept of death in the theological tradition combined fear of the unknown with hope for eternal life, which is significantly different from secular philosophical approaches. The researcher also emphasised that reflections on death in the Christian tradition contributed to the development of asceticism and preparation for a dignified death.

The problem of the relation between God's goodness and death as part of human existence was considered by C. Hartin (2022), highlighting the tension between the idea of death as a consequence of the fall and its definition as an act that allows a person to achieve unity with God. The study demonstrated that the theological tradition recognises death not only as a punishment but also as a path to purification, emphasising its role in Christian spiritual development. The author also analysed how theological thought has changed over the centuries, moving from the perception of death as a tragedy to its understanding in terms of grace and salvation. Similarly, H. Hwang (2021) analysed St. Ambrose's treatise *De Bono Mortis*, addressing the interpretation of death in the context of Christian eschatology and moral preparation for it. The researcher argued that St. Ambrose's teaching not only explains death as a transition to eternal life but also forms a specific moral imperative for believers. The study emphasised that St. Ambrose viewed death not only as a natural phenomenon but also as a test that must be passed through righteous living and asceticism, which echoes Neoplatonic ideas about the purification of the soul.

S. Frittola (2021) investigated the relationship between human dignity and the meaning of death in the Christian tradition, analysing the concepts derived from the treatise of St. Ambrose. The study determined that *De Bono Mortis* was central in shaping medieval ideas about moral preparation for death and an ascetic lifestyle as a means of spiritual purification. The study emphasised that for St. Ambrose, death was not just the end of earthly existence, but an act of transition that should be accompanied by inner improvement and self-denial. The role of asceticism in preparing for death, which echoes the traditions of Eastern Christianity, was emphasised.

P. Moretti (2020) conducted a textual analysis of medieval manuscripts of *De Bono Mortis*, identifying the peculiarities of the transmission of this treatise in the Latin tradition. The study revealed

various variants of the text, which allows for a deeper understanding of its reception in the early Middle Ages. The differences in the Latin manuscripts revealed indicate that the treatise was adapted to the theological and cultural realities of different eras. Lastly, E. Gannaway (2012) examined the visual and symbolic aspects of death in St. Ambrose's work, in particular, how Ambrose used the image of the tomb as a place for the soul's passage to eternity. The study demonstrated that for St. Ambrose, the grave was not a symbol of the end, but rather a threshold to a new existence, which echoes the early Christian tradition of perceiving death as the beginning of heavenly life.

One of the important areas of research is the definition of the anthropological doctrine of the Christian tradition, particularly the views of the Church Fathers on humans as the image of God. B. Czyzewski (2020) analysed the theological interpretations of the concept of "image" in the context of human creation, based on the works of St. Basil the Great and St. Ambrose. The study emphasised that for both thinkers, the "image" was not a static concept but had a dynamic nature: it implied spiritual development, moral growth, and constant likeness to God. B. Czyzewski (2020) emphasises that for St. Ambrose, human corporeality does not contradict godhood but rather points to the need to overcome the corporeal through the spiritual. Despite a considerable amount of research, the contemporary academic literature still lacks a detailed analysis of the relationship between the theological ideas of St. Ambrose and modern conceptions of death in philosophy and bioethics. The study conducted in this paper allows an expanded definition of death in the context of not only medieval Christian theology but also modern philosophical thought. It also fills in the gaps in the study of the influence of Neoplatonism and ancient philosophy on the formation of Christian discourse on death.

The study aimed to examine the understanding of death as a moral and spiritual phenomenon, interpreted as a necessary and meaningful stage of Christian existence, in the context of St.

Ambrose's theological thought. To achieve this goal, the following research tasks were set: to reveal the philosophical and ethical justification of death as a good in the Christian tradition through the analysis of theological and moral concepts formed in patristic thought, in particular in *De Bono Mortis* by Ambrose of Milan; to evaluate the socio-cultural context of the understanding of death in the era of St. Ambrose, comparing it with pagan and Christian ideas about death, as well as to investigate the influence of ancient philosophy, in particular Neoplatonism, on the teachings; to determine the significance of St. Ambrose's concept of death for contemporary philosophical discourse, especially in the context of bioethics and the moral aspects of the end of life, in particular the problem of a dignified death.

Materials and Methods

The study was based on an interdisciplinary analysis, which included the study of Christian eschatology, moral and ethical aspects of death, its socio-cultural context and philosophical interpretations. The methodological basis of the study was the historical and philosophical analysis, comparative method, comparative analysis and hermeneutical approach. The historical and philosophical analysis was used to trace the development of the concept of death in early Christian thought and to identify its relationship with previous philosophical traditions. The comparative method was used to compare St. Ambrose's views with the Neoplatonic and Stoic traditions, as well as to compare such concept of death with modern philosophical and bioethical approaches. A comparative analysis of approaches to the interpretation of death was used to compare the concept of death in *De Bono Mortis* with other theological, philosophical and ethical traditions. The hermeneutical approach was used to interpret the biblical references in the treatise and their significance in St. Ambrose's theological argumentation.

The study was based on a wide range of sources, including modern editions of the *De Bono Mortis* treatise, biblical passages, monographs,

scholarly articles, and materials related to Christian eschatology, death ethics, and the Neoplatonic tradition. Contemporary research on bioethics, the problem of a dignified death, and historical transformations of ideas about death were addressed. To achieve the research goal, several main stages were conducted. The first stage involved an analysis of the theological and philosophical concepts of death in the Christian tradition, which determined how the understanding of death as a good was formed. The views of early Christian thinkers, in particular Augustine, St. Basil the Great, and Gregory of Nyssa, as well as Neoplatonic sources that influenced Christian theology, were studied. In the next stage, the moral and ethical aspect of death in the teachings of St. Ambrose was studied, including an analysis of attitude to the passions of the body, the meaning of death as the end of earthly existence and its connection with the Neoplatonic tradition. The study of the ethical dimension of death in the context of early Christian asceticism, in particular, how St. Ambrose interpreted the renunciation of material goods and bodily pleasures as a form of preparation for death, was highlighted. Subsequently, the study of the socio-cultural context of the understanding of death in the time of St. Ambrose was conducted. The study also analysed how pagan and Christian ideas about death coexisted in late antique society and how the Christian definition of death gradually replaced the traditional Roman ideas about the afterlife. For this purpose, the ideas of Roman stoic philosophers such as Seneca and M. Aurelius, traced the parallels between the Stoic perception of death as a natural phenomenon and the views of St. Ambrose. The next stage of the study focused on comparing different approaches to understanding death in theological, philosophical and ethical traditions. The conceptual differences between Christian, existentialist and modern ethical interpretations of death were analysed.

At the final stage of the study, the significance of St. Ambrose's ideas for contemporary philosophical discourse was analysed, in the

context of bioethics, euthanasia and issues of dignified death. The theological tradition of understanding death as the natural end of life was compared with modern approaches to palliative care and ethical discussions on ending suffering. Emphasis was devoted to comparison of the Christian tradition with the concepts of contemporary death researchers who view death through the prism of positive psychology, socio-cultural transformations and the phenomenological approach.

Results and Discussion

Philosophical and ethical justification of death as a good in the Christian tradition

In the Christian tradition, death is not defined as an end, but as a transition to a new stage of existence that opens in the light of Christ's Resurrection. This definition was formed in patristic thought and is reflected in the writings of the Church Fathers, including St. Ambrose, Augustine, St. Basil the Great and St. Gregory of Nyssa. In the patristic tradition, death is perceived as a consequence of the fall, but also as a means of liberation from sin and return to God. Saint Basil the Great emphasised that death was not part of God's original plan but became a reality due to man's apostasy from God (Rousseau, 1998). The need to prepare for death through a pious life, considering the "science of dying complacently" to be the highest science for a Christian, was emphasised. Gregory of Nyssa viewed death as a temporary separation of the soul and body, which is a necessary stage for achieving eternal life (Farrugia, 2024). Gregory believed that through death, a person is freed from bodily limitations and gains the opportunity for full communion with God. Gregory emphasised that death is not evil, but rather a transition to true existence, where the soul can achieve deification. Aurelius Augustine also interpreted death as a consequence of original sin but saw it as an opportunity for purification and preparation for eternal life (Hegedűs, 2020). Aurelius argued that through death, a person gets rid of the sinful nature and

gets a chance to be restored in God. Augustine emphasised the importance of remembering death as an incentive for moral improvement and spiritual growth.

Ambrose of Mediolanus (Latin: *Ambrosius Mediolanensis*; c. 340 – 4 April 397) is one of the most influential Church Fathers, a Christian theologian, bishop of Mediolanus (modern Milan), church reformer, and one of the four Western Church Teachers (Villazala, 2024). Known as one of the main fighters against Arianism, Ambrose fought for the establishment of Christian orthodoxy, which was important in the context of religious conflicts in the fourth century. In the *De Bono Mortis*, Ambrose of Mediolanus considers death as a good for the believer. Ambrose emphasised that death frees a person from the suffering and temptations of earthly life, opening the way to eternal bliss with God. St. Ambrose

emphasised that fear of death is a consequence of insufficient faith and understanding of God’s plan. In the context of Christian eschatology, St. Ambrose’s work is important because it offers a positive perception of death as a necessary step on the path to salvation. Ambrose urged believers not to be afraid of death, but to perceive it as a transition to a better life, free from suffering and sin (Pakowski, 2023). This approach contributed to the formation of a Christian attitude to death as a natural and good phenomenon that corresponds to God’s providence.

The concept of death in the *De Bono Mortis*

In the treatise *De Bono Mortis*, death is presented as a good that contributes to the attainment of higher spiritual perfection. Ambrose of Mediolanus formulates several key arguments in favour of this understanding (Table 1).

Table 1. *St. Ambrose’s main arguments about the positive meaning of death*

No.	Argument	The essence of the explanation	Biblical references
1	Eliminating suffering	Death frees a person from the trials of earthly life	Weeping and mourning cease (Bible)
2	Returning to God	The soul returns to its divine source	Ecclesiastes 12
3	The condition of resurrection	Without death, there is no transition to eternal life	1 Corinthians 15
4	Purification of the soul	Liberation from earthly passions and sins	Ideas of Neoplatonism (Image, 2020)
5	God’s grace	Death is not only a consequence of the fall but also a way to salvation	Theological interpretations

Source: *compiled by the author*

First, death eliminates earthly trials and suffering. The text repeatedly emphasises that life is accompanied by numerous physical and moral trials: illness, temptation, and the fall. Death is believed to be how the believer is freed from these burdens. St. Ambrose appeals to the biblical notion of “weeping and mourning” as inherent elements of earthly existence that cease after the transition to eternal life. Second, death is a return to God. It is not seen as a cessation of existence but as the return of the soul to its source, i.e., to the Creator.

Analysing the theological basis for this argument, St. Ambrose refers to Ecclesiastes 12 (n.d.), which reads: “And the dust shall return to the ground as it was, and the spirit shall return to the God who gave it”. Thus, death is not only not the end but also becomes a renewal, a return to the original purity. Thirdly, death is a condition for resurrection. St. Ambrose emphasises that resurrection is possible only through death. In the light of Christian eschatology, death is a necessary stage in transition from bodily to spiritual existence. The Apostle

Paul's idea that "if there is no death, there is no resurrection" (1 Corinthians 15, n.d.) comes to mind. Finally, death contributes to the purification of the soul. Bodily existence is accompanied by passions that alienate man from God. *De Bono Mortis* states that death is a way of getting rid of earthly temptations, which helps prepare for the acceptance of eternal bliss. This aspect is related to the Neoplatonic notion of the soul's separation from the material world to return to the divine (Jones, 2020).

In *De Bono Mortis*, death is presented as a phenomenon with a double meaning: on the one hand, it is a consequence of original sin, and on the other hand, it is an instrument of God's providence leading to salvation. St. Ambrose adhered to the traditional Christian understanding of death as a punishment for the fall of Adam and Eve. Ambrose relied on the text of Genesis 3 (n.d.): "To dust you shall return", emphasising that mortality is an inevitable consequence of human sinfulness. However, this mortality, in my opinion, is not an absolute evil, because it also serves as a purification. The development of thought leads to the consideration of death as a path to salvation. Through Christ, death loses its tragic meaning and becomes a transition to eternal life. The text draws parallels between the death of the first man and the death of Christ: if death came into the world through the fall of Adam, it lost its power through the death of Christ (Evans, 2002). Thus, Christ's sacrifice is the key to victory over death.

An important aspect of the concept is the idea of spiritual death as necessary for true life. St. Ambrose echoed the thought of the Apostle Paul: "To live to God, we must die to the world" (Romans 6, n.d.). This means that physical death is only a symbolic reflection of the inner rebirth that takes place in a righteous person. In this context, death takes on a pedagogical significance as it is a means of educating the believer. Expecting death, a person should prepare for it through moral self-improvement, good deeds, and purification from passions (Khodanych, 2023). The treatise emphasises that only those who have lived righteously can face death without fear

and even with joy, looking forward to meeting God (Wiesner, 1970). Although *De Bono Mortis* is written in the context of Christian thought, it demonstrates the influence of ancient philosophy, in particular Stoicism and Neoplatonism. The Stoic tradition influenced the perception of death as a natural process that should not cause fear. Stoics, such as Seneca and Marcus Aurelius, emphasised that death is part of the St. Ambrose order of being and should be accepted calmly and without despair (Ferraiolo, 2019). St. Ambrose used this idea to explain that death is not something terrible, but only a transition to a new state of existence. Another Stoic concept reflected in *De Bono Mortis* is the idea of inner freedom from the fear of death. For the Stoics, death is not evil, but evil is man's dependence on earthly passions (Scherz, 2017). Similarly, St. Ambrose believed that a Christian should not be afraid of death, because it is only liberation from the corporeal world.

The influence of Neoplatonism is manifested in the interpretation of death as the return of the soul to God. St. Ambrose accepts the idea that the material world is only a temporary stage of existence, while true existence is in the spiritual world. In this, Ambrose uses the Neoplatonic concept of the hierarchy of being, according to which the soul, after leaving the body, returns to its divine source (Drecoll, 2024). Neoplatonic influence can also be traced in the understanding of death as a necessary condition for merging with the absolute.

The moral and ethical aspect of death in the teachings of St. Ambrose

In the interpretation of death, Ambrose of Mediolanus viewed it not only as a natural phenomenon or a necessary stage of transition to eternity but also as an act of moral purification (Mediolanus, 1509). Death, following Ambrose, is the moment of the final distinction between the temporal and the eternal, the sinful and the holy. In this sense, it is a spiritual test that a person must go through to achieve unity with God. The main moral requirement that St. Ambrose put

forward to Christians regarding death is the need to prepare for it through righteous living (Fritto-la, 2021). *De Bono Mortis* emphasises that death should not be perceived as a sudden cessation of existence but should be seen as the final stage that summarises all human life activities. Life is full of temptations and trials, and only those who have lived it following Christian virtues can look forward to death with hope and without fear.

The purifying function of death was viewed by St. Ambrose through the prism of its connection with spiritual renewal. It is the moment of final liberation from all the impurities that have accumulated in a person during earthly existence. This correlates with the Christian notion of death as a transitional state in which the soul is freed from bodily limitations and sinful inclinations and can enter the Kingdom of God. The condition for such purification is an appropriate life: observance of God's commandments, avoidance of sin, and spiritual discipline. Without this, according to St. Ambrose, death can become not a purification, but rather a moment of final separation from God (Vannier, 2017). A person who has lived a life of sinfulness and indifference to spiritual improvement will not be able to find the path to salvation after death. *De Bono Mortis* contains reflections on the need to remember death as a factor of moral improvement. The constant awareness that death is inevitable helps a person to be more focused on the spiritual life and less attached to earthly goods. This correlates with the Gospel call to "watch", to be ready for the moment of transition to eternity (Matthew 24, n.d.).

One of the central themes in St. Ambrose's teaching on death is the dichotomy of body and soul. *De Bono Mortis* emphasises the fundamental opposition between the corporeal and the spiritual, which has deep roots in the ancient philosophical tradition (Lévy, 2021). The body, according to St. Ambrose, is temporary, mortal and subject to sin, while the soul is immortal and called to union with God. This antithesis becomes the basis for explaining death as a good act of liberation from bodily limitations and temptations.

As long as a person lives in the body, struggles with desires, passions, and bodily needs that can separate from God is forced upon life. Death is the moment of final separation from the material world and the transition to a state where the soul is no longer burdened by bodily defects. The issue of bodily passions was addressed substantially. St. Ambrose believed that in earthly life, a person often succumbs to temptations that are born in the body: the desire for pleasure, the desire for power, pride, and the thirst for wealth. These passions are an obstacle to spiritual development and death, according to *De Bono Mortis*, frees the soul from their influence. However, for this process of liberation to be beneficial, it is necessary to learn to control passions while mortal. The work emphasises that death only completes this process, but a person must begin it while still alive through self-discipline, prayer, good deeds, and asceticism (Harmon, 2017). Otherwise, even after death, the soul will not be able to achieve true purification but will remain bound to its earthly sins.

In the context of the moral and ethical understanding of death, St. Ambrose emphasised the need for an ascetic way of life as a preparation for a dignified death. In this aspect, the teaching is close to the positions of the desert fathers, who saw asceticism not just to avoid sins, but as a method of gradual liberation from the earthly for the sake of approaching God (Lemeni, 2020). Asceticism is seen not only as a restriction in food, material goods, or social contacts but also as a spiritual practice that helps to develop inner freedom. The rejection of excessive pleasures and bodily aspirations is a form of voluntary "dying" to the world, which prepares the soul for the final transition to eternity. Contemplative life in the context of *De Bono Mortis* plays an important role in preparing for death. St. Ambrose insisted on the need for constant reflection on the temporality of human existence and the inevitability of death. This contemplation should not generate fear, but, on the contrary, strengthen faith and help a person to live in such a way that the transition to eternity is not a tragedy, but an expected moment

of meeting God. The work emphasises that an ascetic and contemplative way of life contributes to a calm attitude towards death, as a person who achieved freedom from material attachments during life does not feel fear of losing them.

The socio-cultural context of the understanding of death in the Age of St. Ambrose

In late antiquity, Roman society was characterised by a complex combination of traditional pagan beliefs and new religious movements, including Christianity. Views on death at this time reflected both the heritage of ancient philosophy and the influence of new spiritual searches. In Roman society of late antiquity, death was perceived through the prism of philosophical and religious ideas. Stoicism, one of the leading philosophical schools of the time, viewed death as a natural and inevitable process that should not cause fear. The Stoics believed that death was part of the cosmic order, and a wise person should accept it calmly as the end of the life cycle. Marcus Aurelius, the Roman emperor and stoic philosopher, emphasised in *Meditations* that death is not evil, but only a transition to another state of being (Robertson, 2024).

Epicureanism, another influential philosophical movement, also offered its understanding of death. Epicurus argued that death should not be a concern for humans because as long as a mortal vessel exists, there is no death, and when it comes, the vessel is gone (Willaschek, 2023). Thus, the fear of death is unfounded, and one should focus on achieving happiness in life. However, along with philosophical approaches, there were also traditional pagan beliefs that perceived death as a transition to the afterlife, where the soul continues to exist. The Romans believed in an underworld where the souls of the dead receive rewards or punishments depending on their actions during life (King, 2020). These ideas influenced funeral rites and attitudes towards the dead in society.

De Bono Mortis, Ambrose of Mediolanus offers a Christian definition of death that differs

from the pagan and philosophical concepts of the time. Ambrose views death not as an end or a transition to the underworld, but as a good that opens the way to eternal life with God. St. Ambrose polemicised against pagan ideas about death, denying the fear of it. Ambrose argued that for a Christian, death is a deliverance from earthly worries and suffering, an opportunity to unite with God. This contrasts with the pagan fear of the unknown after death and the philosophical desire for apathy. In addition, St. Ambrose emphasised the moral aspect of death, stressing the need to prepare for it through a righteous life. Ambrose urged Christians not to fear death, but to perceive it as a transition to a better being, which is consistent with the Christian belief in resurrection and eternal life. *De Bono Mortis* had a significant impact on the formation of medieval Christian thought about death (Mediolanus, 1509). The interpretation of death as a good and a transition to eternal life became the basis for many medieval theologians and philosophers. In medieval culture, the theme of death was central, reflected in literature, art, and philosophy. The concept of “memento mori” became an important motif that underlined the transience of life and the need for spiritual preparation for death (Subhan, 2023). This reflected St. Ambrose's ideas about death as a purification and a path to God. In addition, these teachings influenced the development of ascetic practices in medieval monasticism. The desire for freedom from bodily passions and emphasis on the spiritual life, which St. Ambrose wrote about, became the basis for monastic orders that saw asceticism as preparation for death and union with God.

The significance of St. Ambrose's ideas for contemporary philosophical discourse

The ideas of St. Ambrose, as outlined in *De Bono Mortis*, continue to have a significant impact on contemporary philosophical discourse, especially in the context of ethical concepts of death, the meaning of life, theological thought, and bioethical issues such as euthanasia (Fig. 1).

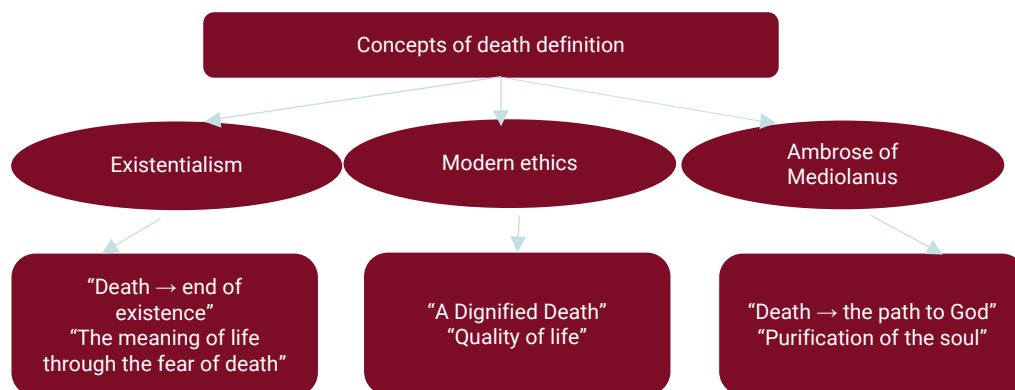


Figure 1. Comparison of approaches to death

Source: compiled by the author based on J. Derrida (2020)

In contemporary philosophy, there are different approaches to understanding death and the meaning of life. Existentialism, for example, views death as the ultimate point of existence, which gives life authenticity and encourages the search for individual meaning. M. Heidegger emphasised that the awareness of mortality is the key to the comprehension of true existence (Blattner, 2023). In this context, death acts as a factor that stimulates personal development and self-determination. St. Ambrose, in turn, interpreted death as a good that frees the soul from bodily limitations and opens the way to unity with God. This understanding differs from the existentialist approach, as it focuses not on the individual meaning of life, but on the transcendent goal of achieving divine existence. Thus, for St. Ambrose, death is not only the end of the earthly journey but also the beginning of eternal life in the presence of God. Contemporary ethics also addresses the issues of quality of life and dignity of death. The concept of “dying with dignity” implies a person’s right to die without pain and suffering, which is sometimes linked to the issue of euthanasia (Morgan & Gazarian, 2023). St. Ambrose, although not considering euthanasia in the modern sense, emphasised the importance of preparing for death through moral and spiritual purification, which can be interpreted as a desire for a dignified death in the spiritual sense.

Contemporary bioethics faces several complex issues, among which euthanasia occupies a special place. Discussions about the right to die, patient autonomy and the ethics of ending life are highly controversial in society, as well as in medical and theological circles. Rethinking *De Bono Mortis* in this context can provide valuable perspectives. St. Ambrose saw death as a good thing but in the context of the natural end of life and the transition to eternity. Ambrose emphasised the importance of moral and spiritual preparation for death, which includes acceptance of suffering as part of being human. This approach can be useful in contemporary debates about euthanasia, emphasising the importance of palliative care, spiritual support and preserving the patient’s dignity until the natural end of life. However, it is worth noting that the direct application of St. Ambrose’s teachings to contemporary bioethical issues has its limitations. The conception of death as good is based on theological premises that may not always be acceptable in a secular society. Therefore, it is important to consider the cultural and historical context of writings when applying them to contemporary ethical debates. The study has established that death in the Christian tradition is seen as a good thing that contributes to spiritual purification and preparation for eternal life. This interpretation is consistent with patristic sources, in particular the writings of

St. Ambrose, Augustine, Gregory of Nyssa and St. Basil the Great. They emphasised that death is the means of liberation from sin and return to God.

Consideration of this problem was also presented in modern Christian ethics, where the approach to death remains a key issue. A. Ride-nour (2017) analysed the meaning of death in the context of Christian medical ethics, comparing it with the views of Augustine and Barth. Ambrose argued that death should not be perceived solely as a physical end, but rather as part of God's work, which allows a person to achieve spiritual renewal. This correlates with the ideas of St. Ambrose, who viewed death not as a tragedy but as a good that leads to salvation and liberation from earthly passions. However, while traditional theology emphasises the purifying and salvific nature of death, modern bioethics draws attention to its moral and medical aspects, particularly the dignity of a person in the process of dying, palliative care and the issue of patient autonomy. Thus, contemporary discussions about death require a combination of spiritual reflection and practical issues of end-of-life care. St. In the treatise *De Bono Mortis*, Ambrose argued that death is not only natural but also necessary for achieving eternal life. Ambrose linked death to the purification of the soul and the break with bodily passions, emphasising that only through death is the fullness of spiritual renewal and union with God possible (Mediolanus, 1509). A similar interpretation could be traced in the Neoplatonic texts that influenced Christian thought, especially in the views on the separation of the soul from the material world. In this context, S. Napier (2014) referred to the ancient interpretation of death as "good" when analysing St. Ambrose's position on euthanasia. The study emphasised that St. Ambrose did not perceive voluntary death as morally permissible, as Ambrose considered it an interference with God's plan. However, in contrast to the Stoic tradition, which permitted suicide for the sake of honour, St. Ambrose viewed death as an act that should take place at a time determined by God. In this aspect, the analysis differs from modern approaches that

interpret euthanasia as a means of avoiding suffering and ensuring a dignified end to life. At the same time, the doctrine leaves room for a moral understanding of death in the context of contemporary bioethics and theological anthropology. The study revealed that death in St. Ambrose's work has a twofold meaning: on the one hand, it is a consequence of original sin, and on the other hand, it is a condition for the transition to salvation. This approach is based on the Christian doctrine of the necessity of death to overcome the consequences of the fall and restore harmony between God and man. Death is not perceived as the final point of existence, but as a door that opens the way to resurrection and eternal life. This approach differs significantly from secularised conceptions of death, which reject its religious interpretation, emphasising its biological or existential aspect. S. Nadler (2020) examined the problem of death through the prism of Spinoza's ethics, where it is interpreted not as a good, but as the end of the life cycle, which has no metaphysical meaning. Spinoza denied the need for fear of death, as Ambrose considered it a natural part of being that does not require spiritual reflection. In this context, St. Ambrose's approach is fundamentally different, insisting that death is not the end, but the moment of union with God. While Spinoza called for not worrying about death and focusing on life, St. Ambrose emphasised that preparation for death is a key aspect of Christian existence, as it determines the soul's further path in eternity.

The problem of death and moral preparation for it was one of the key aspects of the study. It was found that St. Ambrose paid special attention to the ascetic way of life as a way of preparing for death, emphasising the need for spiritual purification and gradual liberation from bodily passions. Ambrose viewed death not as an accidental event but as an inevitable stage on the path to salvation, requiring appropriate internal preparation. In this context, asceticism was seen not only as self-denial but also as a method of forming a correct Christian attitude in the face of the inevitability of death. A similar aspect was considered by

F. Svenaeus (2020) in a study on the phenomenology of suffering and the ethics of end-of-life. The study emphasised that modern society is trying to deny the naturalness of death, pushing it out of consciousness, while historically it was seen as an integral part of human experience. The phenomenological approach focuses on the personal perception of death, which echoes the concept of St. Ambrose, for whom death was not only a physical but also a spiritual transition. While the phenomenology of death views it as an individual event that shapes a person's self-awareness, St. Ambrose emphasised its metaphysical significance, stressing that a correct perception of death is possible only in the light of Christian doctrine.

A separate aspect of the research was the study of the influence of ancient philosophy on theological ideas about death. The study determined that St. Ambrose's teaching on the purification of the soul through death partially echoes Neoplatonic ideas about the gradual liberation from the material world and the return of the soul to its divine source. St. Ambrose adapted these concepts to the Christian context, viewing death not only as a necessary condition for spiritual renewal but also as a manifestation of God's mercy. In this context, L. Marchese (2025) analysed the notion of death in biophilia, highlighting the relationship between the literary depiction of death and real cultural ideas. The study argued that the religious discourse of death is preserved in contemporary literature, although it acquires new interpretations related to modern ideas about corporeality, memory, and the transience of being. The similarity to St. Ambrose's concept is that death continues to be not only a physical phenomenon but also a symbolic transition to another state of existence that has moral and spiritual significance. Another aspect of the study was the significance of St. Ambrose's ideas for contemporary philosophical discourse, in the context of bioethics and the question of the dignity of death. It was found that in the theological tradition, death is seen as a natural stage of human existence that should not cause fear but rather be perceived as part of God's plan.

Instead, modern bioethics focuses on euthanasia, palliative care, and the human right to a dignified death. H. Phan *et al.* (2020) investigated the issue of death education and its impact on positive psychology, emphasising that understanding mortality can contribute to the development of spirituality and ethical self-improvement. The study examines the integration of philosophical, religious and psychological aspects in educational programmes aimed at fostering an informed attitude towards death. The study determined that courses focusing on death helped students develop resilience in the face of existential crises, as well as improved emotional well-being and moral maturity. This resonates with St. Ambrose's concept of the need for moral preparation for death, which should be done through self-discipline and focus on eternal values rather than fear of death. Moreover, H. Phan *et al.* (2020) emphasised that the formation of a conscious attitude to death in the educational process contributes to the harmonisation of the spiritual and psychological state of the individual. In this aspect, their approach is similar to the theological ideas of St. Ambrose, who viewed death as a transition to a higher level of being and an opportunity for the soul to achieve full unity with God. The study also confirms that the inclusion of the topic of death in the education system has a positive impact on a person's attitude to the personal end of life, reducing anxiety, which is consistent with the Christian tradition of perceiving death not as death but as spiritual rebirth.

Conclusions

The study has established that St. Ambrose's treatise *De Bono Mortis* reveals death as a necessary stage of spiritual development, which contributes to the purification of the soul and the transition to eternal life. The analysis of the text shows that St. Ambrose did not consider death solely as a consequence of original sin but saw it as an instrument of divine providence that allows a person to be freed from the perishable world and unite with God. Importantly, this concept has similarities with Neoplatonic thought, where death is

perceived as a return to the divine source. The results of the study confirmed that St. Ambrose offered not only a theological but also a moral and ethical understanding of death. Ambrose emphasised the need to prepare for death through a righteous life, asceticism and renunciation of bodily passions. This coincides with the Christian tradition of understanding death as a part of human existence, which has an educational character. In this aspect, this view correlates with phenomenological concepts, where death is perceived not as an end, but as a transcendent experience that shapes a person's self-awareness.

A comparative analysis of approaches to the understanding of death has shown that the theological tradition represented by St. Ambrose differs significantly from existentialist concepts that focus on the individual experience of death. Whereas existentialism views death as a defining moment of existence that shapes the meaning of life, the Christian understanding of death, as set out by St. Ambrose, is a transition to another form of existence that involves spiritual perfection and union with God. At the same time, the study showed that modern bioethical discussions on dying with dignity partially echo St. Ambrose's view of the need for moral and spiritual preparation for death. The socio-cultural context of the comprehension of death in the time of St. Ambrose testifies to the interaction of Christian and ancient traditions. The study established that in contrast to pagan notions of death as a transition to the realm of the dead, the Christian tradition reflected in *De Bono Mortis* considers death as the return of the soul to God. This is confirmed by the parallels with biblical texts, where death is not an absolute end, but only a change in the state of being.

The study has shown that in late antiquity there was a gradual transformation of views on death, through the establishment of Christian doctrine.

An analysis of modern approaches to understanding death in bioethics, philosophy and religious studies has revealed common and distinctive features with the ideas of St. Ambrose. Contemporary ethics actively discusses the issue of the dignity of death, which partially echoes the Ambrosean idea of moral preparation for death. At the same time, modern approaches, in contrast to theological concepts, emphasise the human right to choose the way of ending life, which is the subject of bioethical discussions on euthanasia. St. Ambrose's approach can be useful for research in religious ethics, the phenomenology of death, and the history of Christian thought. The analysis of the text – *De Bono Mortis* demonstrated how the Christian concept of death was formed and what elements of this tradition have survived to this day. Further research could focus on the influence of the concept of death developed by St. Ambrose on the theological thought of subsequent eras, as well as on its adaptation to various Christian traditions. Particularly promising is the analysis of how these ideas developed in medieval scholasticism, Orthodox theology, and modern ethical approaches to death and spiritual life.

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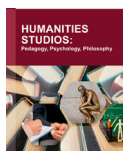
Філософсько-етичний вимір смерті у творі Амвросія Медіоланського “*De Bono Mortis*”: осмислення смерті як блага

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Анотація. Мета роботи полягала в аналізі трактування смерті як морального і духовного явища, яке має позитивне значення для віруючої людини. У даній роботі проаналізовано осмислення смерті як морального та духовного феномену в ранньохристиянському богослов'ї, зокрема через вчення Амвросія Медіоланського. В процесі дослідження було проаналізовано богословські, філософські та етичні аспекти осмислення смерті в християнській традиції, простежено їхній зв'язок із античними філософськими вченнями, особливо стоїцизмом і неоплатонізмом, а також здійснено порівняння з сучасними біоетичними концепціями. Особлива увага була приділена моральному аспекту смерті як засобу очищення, духовного вдосконалення та переходу до вічного буття. У ході дослідження встановлено, що Амвросій Медіоланський розглядав смерть не лише як неминучий біологічний процес, а як необхідну умову звільнення душі від тілесних пристрастей та наближення до Бога. Одним з основних висновків стало те, що уявлення про смерть у християнській традиції відрізняється від світських та філософських підходів тим, що вона розглядається не як кінець існування, а як перехід до істинного буття. Амвросій підкреслював, що страх перед смертю є наслідком недостатньої віри та моральної незрілості, а правильна духовна підготовка дозволяє сприймати її як благо. Виявлено, що його трактування смерті як засобу очищення та повернення до Бога має паралелі з неоплатонічними уявленнями про душу, яка повинна звільнитися від матеріального світу для досягнення вищої реальності. Аналіз історичного контексту показав, що концепція смерті в ранньохристиянському богослов'ї була сформована на перетині античних філософських традицій і біблійних уявлень про життя після смерті. Практичне значення отриманих результатів полягає у можливості застосування концепції смерті, розробленої Амвросієм, у сучасному богословському, філософському та етичному дискурсі.

Ключові слова: християнство; теологія; есхатологія; стоїцизм; аскетизм; неоплатонічні уявлення; мораль



From manipulation to expression: The philosophical shift to natural language interfaces

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Abstract. The modern era of rapid artificial intelligence development witnessed a fundamental paradigmatic shift in human-computer interaction – from technocratic manipulation to conscious expression through natural language. The study aimed to philosophically examine the transition from manipulative to expressive interaction with natural language interfaces. An interdisciplinary approach was employed, combining methods of philosophical analysis, cognitive phenomenology, and digital culture critique. The findings revealed that modern large language model-based interfaces not only simplified communication but also reconfigured the ontological foundations of technological experience. The growing “semantic opacity” of large language systems challenged traditional notions of understanding, accountability, and explainability in technical interaction. A phenomenological shift toward “invisible” technology integrated into the subject’s cognitive architecture was identified. The phenomenon of technological intersubjectivity was analysed, blurring the boundary between human and machine agency. It was demonstrated that language as an interface not only transmitted information but also functioned as a medium for shaping self-identity, autonomy, and cognitive responsibility. The conclusions proved that this transformation carried profound philosophical implications and required systematic reflection to prevent the erosion of human autonomy in the context of cognitive fusion with artificial intelligence. The necessity of an ethical framework for new interfaces was emphasised – one that ensured not only functionality but also the preservation of human agency. The practical significance lay in establishing philosophical foundations for designing natural language interfaces that supported human autonomy, responsibility, and epistemic independence.

Keywords: human-computer interaction; cognitive abstraction; graphical user interfaces; artificial intelligence; philosophical mediation

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Introduction

Modern artificial intelligence development is transforming human-technology interaction: shifting from technocratic control to natural language communication, reshaping philosophical concepts of agency and accountability. The “semantic opacity” of language models challenges traditional notions of understanding and explanation, impacting human cognition and self-identification. A critical task now is examining how these technologies affect personal autonomy and epistemological independence to ensure harmonious coexistence rather than technocratic subjugation.

The work of B. Chen *et al.* (2025) explored the application of large language models (LLMs) in the domain of philosophical counselling, revealing their capacity to significantly enhance the accessibility, adaptability, and effectiveness of humanities-cantered services. Their analysis underscored how natural language interfaces could democratise philosophical reflection and dialogue, making such engagements more culturally responsive and technically scalable. However, they also emphasised that LLMs, while linguistically proficient, remain limited in their ability to exhibit genuine empathy and contextual understanding, raising serious ethical questions about the authenticity and confidentiality of AI (artificial intelligence)-mediated interactions in deeply human-centric domains. C. Tarsney (2025) offered a critical examination of the epistemic and moral risks posed by LLMs, particularly regarding large-scale disinformation, manipulation, and the opacity of AI-generated content. He argued for a paradigm of “extreme transparency,” in which AI outputs would be consistently contextualised, annotated, and monitored by embedded meta-commentary systems. This work illuminated how the increasing autonomy and agentic potential of advanced natural language interfaces demand rethinking normative boundaries in AI ethics and require the development of robust safeguards to prevent systemic cognitive manipulation and epistemic erosion.

In a complementary vein, M. Rahman *et al.* (2023) investigated the impact of natural language processing (NLP) technologies on artistic creativity, focusing on their use in poetry and literary production. Their findings illustrated the dual nature of human-AI co-creation: on one hand, such collaboration expands the boundaries of artistic expression; on the other, it introduces complications regarding authorship, algorithmic opacity, and the reproduction of cultural biases. The authors proposed design-oriented solutions to align NLP tools more closely with the needs of artists, advocating for transparency in training data and intuitive interface design as a way of reinforcing human agency in creative processes. G. Dupre (2021) contributed to the philosophical debate on the identity thesis between language and thought by interrogating contemporary linguistic theories. He challenged the notion that natural language and cognition are functionally equivalent, pointing to instances where semantically rich but grammatically irregular utterances signal a deeper disjunction between linguistic structure and conceptual intent. This insight is critical in the context of natural language interfaces, as it raises concerns about whether current LLMs, which are fundamentally syntactic machines, can authentically model the nuance and fluidity of human reasoning.

The research by A. Gatti & V. Mascardi (2023) introduced the VEsNA framework, a system for interacting with virtual industrial environments through natural language commands. Their work demonstrated how simplifying interfaces via natural language can empower users without technical expertise, contributing to inclusive automation and widening access to digital systems. This case highlighted the role of expression over manipulation in shaping user-centric digital environments, pointing toward a broader shift in interface design philosophy that prioritises accessibility and semantic coherence over code-based precision. R. Millière & C. Buckner (2024) examined core philosophical challenges linked to

the development and deployment of large multi-modal language models. Their study delved into the interpretability problem, raising scepticism about claims that LLMs can replicate or approximate human consciousness or intentionality. They explored the ethical and cognitive limits of using such models to simulate human-like understanding, emphasising the gap between functional behaviour and the internal architecture of subjective experience – thus reinforcing the need to distinguish between expressive interface capacity and genuine cognitive depth.

The work of R. Nefdt (2024) provided a historical-philosophical account of human-computer interaction, charting the transition from mechanistic control paradigms to dialogic, expressive forms of engagement via natural language. He argued that this evolution repositions technology not merely as an operational tool but as a conversational partner, thereby shifting the ontological status of interfaces from passive conduits of action to co-constructors of meaning. This reconceptualisation has profound implications for the distribution of agency and the design of future communicative systems that are responsive, adaptive, and collaborative by nature. In a related direction, A. De Vrio *et al.* (2025) addressed the phenomenon of anthropomorphisation in language-based AI, presenting a taxonomy of its linguistic expressions and psychological effects. They cautioned against the tendency to conflate expressive fluency with human-like understanding, warning that such projection can lead to a degradation of genuine interpersonal relationships. Their work contributed important ethical and conceptual tools for interrogating the increasingly blurred boundaries between human and artificial agents in natural language environments.

Despite the breadth and depth of these contributions, several critical dimensions of the shift from manipulation to expression remain underexplored. Most notably, the phenomenological transformation whereby natural language interfaces become “invisible mediators” of experience – blending seamlessly into cognitive and communicative

routines – has yet to be fully theorised. Moreover, the structural redistribution of epistemic and cognitive responsibility between human users and intelligent systems remains insufficiently mapped, leaving open essential questions about agency, understanding, and the philosophical stakes of living and thinking alongside expressive machines. These gaps signal the need for sustained inquiry into how natural language interfaces do not merely facilitate expression but co-author the evolving contours of subjectivity and digital being.

The research objectives focused on analysing the philosophical aspects of shifting from manipulative to expressive interaction through natural language interfaces, with particular emphasis on transformations in cognitive, phenomenological and epistemological foundations of human-digital system interaction. The study sought to: examine key philosophical changes prompted by natural language interfaces regarding understanding, agency and intersubjectivity; investigate how natural language interaction influences human thought structures and enables technologically extended cognition; and evaluate both risks and opportunities for human autonomy development within increasingly AI-integrated thinking and communication processes. The research methodology was based on historical-genetic analysis of the evolution of interface paradigms, complemented by philosophical-phenomenological interpretation of changes in human-computer interaction. For data systematisation, comparative analysis of tabular summaries reflecting key characteristics of different stages of interface development was applied. Conceptual synthesis of theoretical propositions provided an interdisciplinary foundation for analysing the cognitive, epistemological and social consequences of the transition to language interfaces.

The evolution of interface paradigms

The desktop metaphor has historically dominated human-computer interaction by requiring users to adapt their cognition to computational logic through visual representations. This paradigm of

explicit manipulation demands that users translate their intentions into discrete, predetermined actions: clicking specific buttons, dragging icons to particular locations, or navigating through hierarchical menu structures. While revolutionary for its era, this approach imposed significant cognitive constraints by requiring users to maintain mental models of interface operations and learn specific manipulation sequences. The transition from traditional graphical user interfaces (GUIs) to natural language interfaces, particularly those mediated by large language models (LLMs), introduces not only technical and cognitive shifts but also critical epistemological and ethical considerations. One such concern is the potential for linguistic manipulation. LLMs, by design, generate language that appears contextually appropriate and semantically fluent. However, this fluency can mask implicit biases embedded in training data or model architecture, leading to subtle yet pervasive influence on user decision-making. When users consult language models for information or recommendations, even minor phrasal choices, modal verbs, or framing structures may predispose them toward specific interpretations or actions. For example, suggestions such as “you might want to...” or “the most effective way is...” inherently guide user judgment under the guise of neutrality. This dynamic raises important questions about agency, especially when the user perceives the model as an objective or omniscient authority. The phenomenon is further complicated by the tendency of users to anthropomorphise conversational agents, attributing to them intentionality or trustworthiness not warranted by their statistical foundations. As such, linguistic interfaces must be interrogated not only for their functionality but also for their potential to shape epistemic environments, social perceptions, and individual autonomy through discourse patterns that appear benign yet exert rhetorical force (Kirkwood, 2024).

Simultaneously, the increasing reliance on language-based interaction interfaces may contribute to a decline in spatial and procedural

cognitive skills traditionally reinforced by GUI-based manipulation. GUIs, through their spatial metaphors and hierarchical structures, encourage users to develop and maintain mental maps of digital environments, fostering algorithmic reasoning, problem decomposition, and procedural planning. As interaction becomes more declarative and expressive – focused on what the user wants rather than how to achieve it – the necessity for users to internalise underlying processes diminishes. This shift risks a form of cognitive deskilling, where users may lose familiarity with conceptual models of system operation, logic sequencing, or structural dependencies. The phenomenon echoes concern in cognitive psychology regarding automation bias and overreliance on intelligent systems, wherein the delegation of procedural tasks to autonomous agents leads to atrophy in users’ problem-solving competencies. While natural language interfaces offer unparalleled accessibility and efficiency, they may simultaneously erode the development and retention of spatial, algorithmic, and exploratory reasoning essential for digital literacy in complex systems.

The emergence of natural language interfaces, powered by large language models and multimodal artificial intelligence systems, suggests a deep reconfiguration of this relationship. Rather than manipulating abstract interface elements, users can now express their intentions directly through natural language. This shift from manipulation to expression fundamentally changes the nature of human-computer interaction: instead of learning how to manipulate an interface, users can simply state what they want to accomplish. This transformation demands philosophical examination not merely as a technical advancement, but as a fundamental shift in how humans relate to and think with computational systems (Cohen, 1992).

The evolution of computer interfaces represents a succession of increasingly sophisticated abstractions from machine-level operations, each stage marking a distinct shift in the cognitive relationship between human and computer.

At the dawn of computing, interaction required direct manipulation of physical hardware through switches, punch cards, and hardwired connections. This hardware interface era demanded explicit understanding of machine architecture and binary operations, creating a high cognitive barrier to entry (Naik & Meghanandha, 2024; Brincker, 2024). The subsequent emergence of text-based interfaces initiated the first major abstraction, replacing physical manipulation with symbolic representation. This command-line interface paradigm introduced what P. Dourish (2017) terms “symbolic abstraction” – the representation of computational

processes through textual commands. While still requiring users to learn specific command syntax, this paradigm established a more conceptual interaction model. The revolutionary introduction of visual metaphors and direct manipulation principles marked the transition to graphical user interfaces, representing a fundamental shift toward spatiotemporal interaction models. This transformation democratised computing access by leveraging users’ innate understanding of physical space and object manipulation (Norman, 2013). The evolution of human-computer interaction paradigms is depicted in Table 1.

Table 1. *The evolution of human-computer interaction paradigms is depicted*

Time period	Interface paradigm	Example	Cognitive load	Level of abstraction
1950s-1960s	Hardware Interfaces	Switches, Punch Cards	High	Low
1970s-1980s	Command-Line Interfaces (CLI)	Text Commands	High	Low
1980s-1990s	Graphical User Interfaces (GUI)	Desktop, Windows	Medium	Medium
1990s-2010s	Early NLP Systems	Voice Commands	Lower	Higher
2020s	LLM-Based Interfaces	ChatGPT, Copilot	Low	High

Source: *compiled by the author based on F. Gurcan et al. (2020)*

The gaps between key stages in the evolution of human-computer interaction interfaces are driven by both technological and conceptual factors. The shift from hardware interfaces to command-line interfaces (CLI) in the 1970s-1980s became possible only with the emergence of operating systems (particularly UNIX), which provided the infrastructure for interactive operation and programming. This stage required not only the development of appropriate environments but also a rethinking of the very interaction model – from physical actions to symbolic control through text commands. Similarly, the transition from early natural language processing systems (1990s-2010s), which were primarily rule-based and relied on narrow specialised scripts, to modern LLM-based interfaces in the 2020s was enabled by the advent of transformer architectures, large-scale computational power, and access to vast text corpora. While the concept of linguistic interaction existed

earlier, it was the technological breakthrough of the Transformer model that made it possible to implement a general-purpose language interface capable of flexible, context-sensitive, and high-level interaction with computer systems. Each evolutionary leap in interface design has thus been contingent on both enabling technologies and shifts in interaction paradigms. The move from CLI to GUIs in the 1980s-1990s, for instance, depended on advances in display technology and input devices alongside new conceptual frameworks for visual interaction. Likewise, today’s AI-driven conversational interfaces represent not just better algorithms but a fundamental reimagining of human-computer communication – from rigid command structures to fluid, intent-based dialogue. These transitions underscore that interface evolution is never purely technical; it equally depends on redefining how humans conceptualise their relationship with machines (Gurcan *et al.*, 2020).

The success of graphical interfaces stems from their sophisticated exploitation of embodied cognitive schemas – fundamental patterns of sensorimotor experience that structure human understanding. Drawing on theory by G. Lakoff & M. Johnson of conceptual metaphor, it can be observed how graphical user interfaces leverage several essential cognitive structures (Yung, 2021). The concept of windows, folders, and nested hierarchies exploits embodied understanding of containment and spatial organisation through the container schema. The implementation of drag-and-drop operations and menu navigation paths builds on innate understanding of movement through space via the source-path-goal schema. Furthermore, actions like “pushing” buttons and “pulling” down menus utilise basic force-dynamic patterns identified by L. Talmy (1988) as fundamental to human cognition (Łozińska, 2021).

Each evolutionary stage manifests distinct phenomenological affordances that reshape the possibility space for interaction. Ecological theory of affordances, extended by D. Norman (2013) to technological interfaces, helps explain how these different paradigms create varying “action possibilities” for users. The graphical user interfaces paradigm, in particular, established what might be termed metaphorical affordances – interaction possibilities that emerge from the mapping of physical-world understanding onto digital environments.

However, the desktop metaphor’s reliance on physical-world analogies has introduced significant constraints that shape the boundaries of human-computer interaction. The necessity to maintain coherent spatial metaphors has limited possible interactions to those that can be meaningfully mapped to physical experiences (Pitt & Casasanto, 2022). Perhaps most significantly, the emphasis on visual-spatial interaction restricts the expression of abstract concepts and relationships that don’t readily map to physical metaphors. These inherent limitations of metaphorical interfaces set the stage for the emergence of

the natural language interaction paradigm that promises to transcend these constraints through direct intentional expression.

From manipulation to expression: A conceptual framework

After tracing the evolution of interface paradigms, the fundamental distinction that characterises the current transformation in human-computer interaction must be carefully examined. The shift from explicit manipulation to intentional expression represents more than a mere technical advancement – it embodies a profound reconceptualisation of how humans engage with computational systems. Explicit manipulation, as manifested in traditional graphical interfaces, requires users to translate their intentions into discrete, pre-determined actions within a spatially-organised metaphorical environment. When this mode of interaction is examined closely, it is found to embody what M. Heidegger terms “ready-to-hand” engagement with technology – tools become extensions of physical capabilities, but only through learned patterns of specific manipulations (Daniel, 2022). Consider how the user might restructure a document using a traditional interface: the user must know which menu contains the relevant commands, how to select appropriate sections of text, and how to execute specific formatting operations. Each step requires explicit manipulation of interface elements – clicking particular buttons, dragging handles to precise positions, or navigating through hierarchical structures. This mode of interaction, while powerful, imposes what D. Norman (2013) calls a “gulf of execution” between user intention and system action.

In contrast, intentional expression through natural language interfaces fundamentally alters this relationship. Rather than requiring users to learn and execute specific manipulations, these interfaces allow direct expression of desired outcomes. This shift represents what might be termed a “semantic turn” in human-computer interaction – from procedural knowledge to declarative knowledge, from knowing how to knowing

what. When users can simply state “reorganise this section to emphasise the main argument”, they engage with the computer at the level of

meaning rather than mechanism. A comparison of the “Manipulation and Expression Paradigms” is shown in Table 2.

Table 2. *Manipulation vs. expression paradigms*

Manipulation paradigm	Expression paradigm
Requires procedural knowledge	Uses declarative knowledge
Based on spatial metaphors (e.g., desktop)	Based on semantic abstraction
High cognitive load	Low cognitive load
Explicit tool awareness (user must focus on the interface/tool)	Implicit mediation (tool “disappears” into the background)
Example: Reformat document via GUI: select text → navigate menu → choose style	Example: “Make all headings bold” via natural language
Phenomenological state: ready-to-hand (until failure reveals the tool)	Phenomenological state: invisibly-at-hand (seamless experience)

Source: compiled by the author based on K. Sedig et al. (2001), L. Ahmed (2018)

This transition has significant consequences for human cognition and technological mediation. In the manipulation paradigm, users must maintain mental models of both their goals and the specific steps required to achieve them. The expression paradigm, however, allows what E. Pantano & D. Scarpi (2022) might be recognised as a more natural extension of human cognitive processes – it can think and express intentions in the same terms that are used for human-to-human communication. Yet this shift also introduces new complexities in the human-computer relationship. While explicit manipulation makes the mediating role of the interface apparent through its very constraints, intentional expression can obscure the complex translations occurring between natural language input and computational action. This tension between transparency and opacity emerges as a central philosophical challenge that will be explored more deeply in subsequent sections. The transition to natural language interfaces represents a fundamental shift in this dynamic, manifesting across multiple domains of human-computer interaction. Smart home control has evolved from app-based interface manipulation to natural language commands – users no longer navigate menus to adjust individual device settings, but simply express intentions like “set up for movie

night”. Database interaction has transformed from explicit Structured Query Language (SQL) queries to natural language requests like “show me sales trends from last quarter”, with systems handling the complex query construction internally.

This transformation crystallised with the widespread adoption of ChatGPT in late 2022, demonstrating how a simple text input interface could replace numerous specialised graphical user interfaces elements, from image editors to spreadsheet functions. The subsequent integration of these capabilities into desktop applications marks another key evolution in this interface paradigm. Natural language interaction is no longer confined to isolated web-based applications but becomes native to everyday computing environments – from text editors and design tools to development environments. This integration allows for more seamless interaction with local tools and files while maintaining the directness of natural language expression. The text input box becomes a universal interface that connects users with both web services and local computing capabilities.

Rather than requiring users to translate their intentions into explicit manipulations – learning specific menu locations or keyboard shortcuts – these systems accept natural human expression and handle the translation themselves.

The emergence of intentional abstraction, where complex systems hide behind natural language interfaces, marks a departure from physical metaphors toward a more conceptually direct mode of interaction. The minimalist text interface enables expanded functionality by eliminating the need for complex visual hierarchies and predetermined interaction patterns. This transformation of the interface affordance space alters how human intention is mediated through technological systems, marking a shift in what D. Ihde (2009) terms the human-technology-world relationship.

Natural language interfaces fundamentally alter technological mediation from a phenomenological perspective. Traditional graphical user interfaces maintained explicit boundaries between human and machine domains, while natural language interaction introduces intersubjective ambiguity. The interface transitions from a tool for manipulation to an agent in a dialogic process, raising fundamental questions about technological agency, intentionality, and the nature of human-computer relationships. The shift from explicit manipulation to intentional expression reduces cognitive load (Ellerton, 2022). Users no longer maintain mental models of hierarchical file systems or action sequences, instead expressing intentions directly through natural language. This cognitive offloading fundamentally alters the distribution of computational tasks between human and machine agents.

Philosophical challenges and implications

The emergence of natural language interfaces introduces what might be termed the understanding illusion – a phenomenon where systems create a compelling impression of semantic comprehension while operating through fundamentally different mechanisms than human understanding. While these systems can engage in sophisticated dialogue and generate contextually appropriate responses, they function through statistical pattern matching rather than genuine semantic understanding (Bender & Koller, 2020).

This disjunction between apparent and actual comprehension raises fundamental questions about the nature of understanding itself.

The philosophical implications extend beyond mere technical distinctions. Drawing on Chinese Room argument by J. Searle (1980), it must be considered whether increasingly sophisticated pattern matching might eventually constitute a form of understanding different from, but parallel to, human semantic processing. This consideration challenges traditional philosophical assumptions about the nature of meaning and understanding, suggesting a potential plurality of valid comprehension modalities. Furthermore, this illusion of understanding creates what might be termed semantic opacity – a condition where users cannot readily distinguish between genuine comprehension and sophisticated mimicry. This opacity has practical implications for trust, reliability, and the formation of appropriate mental models of system capabilities. As H. Dreyfus argued in his critique of artificial intelligence, the gap between simulation and genuine understanding may be philosophically significant even when pragmatically imperceptible (Frana & Klein, 2021). The evolution of natural language interfaces fundamentally alters the phenomenological structure of human-computer interaction. As these interfaces become increasingly transparent, they risk transitioning from M. Heidegger's (1962) ready-to-hand to what might be termed invisibly-at-hand – a novel phenomenological state where the technology becomes so seamless that users lose awareness not only of its mediating role but of its presence altogether.

The abstraction of technological processes behind natural language interfaces creates what D. Ihde (2009) terms a "black box" effect, where the mechanisms of technological mediation become increasingly opaque to users. This intentional opacity potentially undermines user agency and technological literacy, raising questions about ability to maintain critical engagement with systems people increasingly rely upon but decreasingly understand. Natural language

interfaces also introduce profound ambiguity into the traditional subject-object relationship between human and computer. Drawing on the concept of intersubjectivity by M. Merleau-Ponty, the emergence of a novel form of technological intersubjectivity that challenges traditional phenomenological categories can be observed. (Du Toit & Swer, 2021). This blurring of boundaries between human and machine cognition suggests a fundamental transformation in how technological mediation is conceptualised. The shift from physical manipulation to verbal interaction additionally transforms the embodied nature of human-computer interaction. This transformation requires to reconceptualise the term “the enacted mind” in the context of technological engagement. As interaction with computers becomes increasingly divorced from physical metaphors, it must be considered how this affects embodied understanding of computational processes (Łozińska, 2021).

The evolution toward natural language interfaces suggests an emerging era of technological transparency that fundamentally reshapes human cognitive architecture. Building on the extended mind hypothesis by A. Clark & D. Chalmers (1998), these interfaces potentially constitute a new form of cognitive extension, where technological systems become more intimately integrated into human cognitive processes than traditional interfaces allow. This integration raises profound questions about the boundaries of human cognition and the nature of technological cognitive enhancement. The increasing sophistication of natural language interfaces also challenges traditional notions of agency. Drawing on actor-network theory by B. Latour, it can be observed how agency becomes distributed across human-computer assemblages in ways that transcend simple tool use (Bar-Gil, 2025). This distribution of agency across human and technological actors suggests a fundamental transformation in how people understand autonomous action and decision-making. The potential emergence of A. Clark’s natural-born cyborgs – humans with technologically integrated cognitive

processes – necessitates a reconceptualisation of what Kant termed “autonomous agency” in the context of human-AI interaction (Marshall, 2022). As natural language interfaces evolve in sophistication and integration into cognitive processes, the questions of authority, responsibility, and autonomy in these hybrid human-computer systems must be grappled with.

The philosophical challenges of natural language interfaces extend into profound ethical and social domains. The opacity of these interfaces raises critical questions about epistemic responsibility and the conditions for justified belief in technologically mediated knowledge acquisition. How do we maintain intellectual autonomy and critical thinking capabilities when these cognitive processes become increasingly intertwined with systems whose operations we cannot fully comprehend? The emergence of sophisticated language models also challenges traditional theories of social cognition. As these systems become more adept at simulating human-like interaction, the understanding of technological sociality and its implications for human social development have to be reconsidered. This transformation suggests a future where the boundaries between human and machine social interaction become increasingly blurred. Moreover, the abstraction of technological complexity behind natural language interfaces creates new forms of power relations between technology providers and users. This dynamic raises important questions about technological dependency and autonomy, requiring careful philosophical analysis of how these relationships affect human agency and social organisation. As natural language interfaces become more central to cognitive and social lives, understanding and addressing these power dynamics becomes increasingly crucial for maintaining human autonomy and social equity.

In contrast, the work of F. Sovrano & F. Vitali (2022) focused on the practical aspect, particularly the explanatory capabilities of natural language-based systems. The authors proposed a technical implementation that enhances the

illocutionary component of interaction, improving the communicative quality of artificial intelligence. Although the study did not delve into the philosophical underpinnings of the transformation, as in the presented conclusions, the empirical results confirmed the growing importance of intersubjectivity in technological communication. Specifically, it was found that AI effectiveness depends not only on accuracy but also on the ability to anticipate user intentions. In light of the findings on the transformation of human-computer interaction through natural language interfaces, it became important to correlate the study's results with the contributions of other authors who examined both practical and theoretical-philosophical aspects of this phenomenon (Kuznietsov & Kuznietsova, 2024).

The analysis of works by S. Miguens (2022) and K. Zhou *et al.* (2024) allowed for a deeper understanding of the limits and possibilities of modern language models, particularly in the context of intersubjectivity, epistemology, and cognitive impact. The study by K. Zhou *et al.* paid special attention to the problem of overconfidence in large language models (LMs), which was identified as one of the key threats to safe and responsible human-technology interaction. According to the results of this empirical study, LMs tend to exhibit high confidence even when their responses are incorrect, potentially misleading users. The data obtained in this work (particularly, 47% of incorrect answers presented with high confidence) complemented the conclusions about semantic opacity as one of the philosophical challenges raised in the current study. It was confirmed that not only the technical architecture of models but also the socio-cognitive responses of users (such as blind trust in "confident" generations) shape a new epistemological situation where the boundaries between knowledge, assumption, and simulation become blurred. Moreover, the strategic recommendations presented in the work of K. Zhou *et al.* regarding reducing the level of overconfidence in language models correlated with the need to reconsider machine agency identified in this

study. The engineering measures proposed by the authors aimed not only at technical improvement of the models but also at reducing risks to human autonomy – an aspect that was also identified as critically important within the philosophical analysis of human-machine interaction.

Another theoretical perspective was provided in the article by S. Miguens (2022), which, drawing on Daniel Dennett's ideas, analysed the role of language as a cultural rather than innate cognitive mechanism. This approach significantly resonated with the concept of technologically extended cognition developed within the study, where natural language interfaces were considered, external cognitive resources integrated into the user's mental processes. D. Dennett's theory, which rejects naturalism in the spirit of Fodor and Chomsky, suggested that language emerged from social interaction rather than neural programming – similar to how modern natural language interfaces are formed not only as technical tools but as components of the socio-technological space that modifies human perception, memory, and consciousness. However, it was noted that Dennett, while supporting the concept of cognitive evolution, remained within a deflationary interpretation of consciousness, avoiding ontological elaboration. In contrast, the conclusions of the current study emphasised the need for critical reflection not only on the epistemic but also on the ontological consequences of integrating AI into human thinking, which required deeper philosophical articulation of agency and the boundary between human and artificial subjects.

The analysis of contemporary research on the functioning of language models in the context of human-machine interaction demonstrated both significant progress in the development of natural language interfaces and revealed a number of fundamental limitations that cast doubt on the depth of semantic understanding by the models. The work of N. Srikanth *et al.* (2024) raised the issue of insufficient robustness of language models to paraphrasing – a property that is fundamental to human linguistic thinking. The authors showed

that despite advancements in pretraining, LLMs remained overly dependent on the surface form of linguistic expression. The conclusions of this study resonated with the obtained results, where sensitivity of models to formal variations in queries was also recorded. The application of the PC metric and the creation of the ParaNlu dataset made it possible to empirically verify this phenomenon, confirming its systemic nature. Consequently, the need arose to reconsider approaches to the architecture of language models, particularly in terms of semantic invariance. The study by A. Gandhi *et al.* (2023) proposed a practically oriented implementation of LLMs in the form of a Semantic Interpreter system that transformed natural language commands into executable code using a specialised ODSL language. This approach ensured functional integration with office software APIs, particularly PowerPoint, significantly improving usability and highlighting the potential of LLMs as control interfaces. However, this system relied on the Analysis-Retrieval prompt construction method, which again raised the issue of model dependency on templating and prior contexts. The results obtained in the current study also observed the need for domain-specific tuning, indicating the limited universality of language models without appropriate training or adaptation. Thus, a tendency toward creating “proxy understanding” was identified – where the model demonstrated correct behaviour only within a specific context or training pattern, lacking true generalisation capability.

The work of N. Srikanth *et al.* (2024) emphasised a philosophical dilemma: despite the aspiration to create interfaces for free expression of intent, modern LLMs mostly modelled statistical similarity rather than deep semantic understanding. This aligned with the conclusions of other studies, which also demonstrated a preference for surface-level correspondence over interpretive depth. On the other hand, the approach of A. Gandhi *et al.* (2023) demonstrated the effectiveness of LLMs as an applied tool but left open the question of scalability beyond predefined scenarios. The work of P. Mah *et al.* (2022) focused on the practical

aspects of using AI and NLP in enterprise management under Industry 4.0 conditions. The authors identified these technologies as key drivers of business process transformation, particularly in automating communication between enterprises and customers. Within the “Behaviour-oriented drive and influential function of IoTs” concept, it was found that AI and related tools significantly improved service efficiency, fostered customer loyalty, and optimised managerial decisions. The obtained results (a score of 12 out of 15 on key metrics) confirmed the effectiveness of such approaches, aligning with the conclusions of the study, which also noted the significant functional efficiency of modern LLMs in applied scenarios, particularly in business environments. At the same time, the results of the study by M. Carroll *et al.* (2023) cast doubt on the ethical neutrality of such technologies, highlighting the potential threat posed by AI’s manipulative potential. It was emphasised that in cases where language models and other intelligent systems mediate communication (e.g., in social media or chatbots), there is a risk of influence on users that is difficult to detect and assess. A conceptual analysis of categories such as motive, intent, covertness, and harm showed that even unintentional AI behaviour could violate human autonomy principles. These warnings were particularly relevant in the context of the current study, which also identified instances of uncontrolled interpretation of queries by language models, potentially leading to unpredictable or contextually unacceptable outcomes. The practical conclusions regarding the risks of overconfidence in language models and the theoretical considerations about the cultural nature of language and consciousness supported the main thesis that natural language interfaces are not neutral mediators. They shape a new cognitive ecosystem where technology, culture, and subjectivity coexist.

Conclusions

The paradigmatic shift from explicit manipulation to intentional expression through natural language interfaces represents a profound

transformation in the human-technology relationship that transcends mere interface evolution. This transformation manifests across multiple philosophical dimensions: the emergence of semantic opacity challenges traditional notions of understanding and comprehension, while the phenomenological shift toward invisibly-at-hand technology fundamentally alters experiential relationships with computational systems. The introduction of sophisticated natural language interfaces creates novel forms of technological intersubjectivity that blur traditional boundaries between human and machine agency.

These philosophical implications extend beyond theoretical concerns into practical considerations of human autonomy and cognitive architecture. The potential emergence of technologically extended cognition through natural language interfaces suggests a future where human thought processes become increasingly intertwined with artificial intelligence systems. This integration raises critical questions about epistemic responsibility, technological dependency, and the nature of human agency in an era of sophisticated language models.

The philosophical challenges identified – from the understanding illusion to questions of distributed agency – demand ongoing critical analysis as these technologies evolve. Natural

language interfaces are changing how humans and computers interact in ways that go beyond technical progress. This shift deeply reshapes relationships with technology, affecting how we think, socialise, and develop future computer systems. Understanding and addressing these philosophical implications becomes crucial for ensuring that the evolution of natural language interfaces enhances rather than diminishes human agency and understanding. However, a limitation of this study is its predominantly theoretical nature, which calls for further empirical research on the actual impact of LLM interfaces on users' cognitive processes. A promising direction lies in interdisciplinary exploration of the interaction between artificial intelligence and human cognition, which would enable the development of ethical, educational, and technical strategies to safeguard user autonomy amid the growing integration of language models into everyday life.

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Від маніпуляції до експресії: філософський зсув до інтерфейсів природної мови

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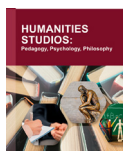
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Анотація. Сучасна епоха швидкого розвитку штучного інтелекту засвідчила фундаментальний парадигматичний зсув у взаємодії людини з комп'ютером – від технократичної маніпуляції до свідомого вираження через природну мову. Дослідження мало на меті філософськи дослідити перехід від маніпулятивної до експресивної взаємодії з інтерфейсами природної мови. Було застосовано міждисциплінарний підхід, що поєднує методи філософського аналізу, когнітивної феноменології та критики цифрової культури. Результати дослідження показали, що сучасні інтерфейси на основі моделей великих мов не лише спрощують комунікацію, але й переналаштовують онтологічні основи технологічного досвіду. Зростаюча «семантична непрозорість» великих мовних систем поставила під сумнів традиційні уявлення про розуміння, підзвітність та пояснювальність у технічній взаємодії. Було виявлено феноменологічний зсув до «невидимої» технології, інтегрованої в когнітивну архітектуру суб'єкта. Було проаналізовано феномен технологічної інтерсуб'єктивності, що розмиває межу між людською та машинною активністю. Було продемонстровано, що мова як інтерфейс не лише передає інформацію, але й функціонує як середовище для формування самоідентичності, автономії та когнітивної відповідальності. Висновки довели, що ця трансформація має глибокі філософські наслідки та вимагає систематичного осмислення, щоб запобігти руйнуванню людської автономії в контексті когнітивного злиття зі штучним інтелектом. Було підкреслено необхідність етичної основи для нових інтерфейсів – такої, яка б забезпечувала не лише функціональність, але й збереження людської активності. Практичне значення полягало у встановленні філософських основ для проектування інтерфейсів природної мови, які б підтримували людську автономію, відповідальність та епістемічну незалежність

Ключові слова: взаємодія людини з комп'ютером; когнітивна абстракція; графічні інтерфейси користувача; штучний інтелект; філософське посередництво



Transformations of values in ethical design approaches

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Abstract. Human existence in a technologised world has prompted scientists to comprehensively consider the problem of integrating human values into the processes of designing products, services and systems, which has led to the emergence and rapid growth of various ethics-oriented approaches to design. The aim of this article was to analyse trends in the interpretation of values in ethical design approaches in contemporary scientific sources. The general strategy for identifying relevant publications was based on a targeted thematic selection in scientometric databases using qualitative methods. As a result of the analysis of the selected sources, key provisions regarding values and their integration into design from the perspective of contemporary approaches were identified and systematised. It was found that although the value systems considered differ significantly depending on the focus of the concept, they often coincide in key points based on fundamental ethical principles. Research into the development of approaches to interpreting values in design has shown that two main trends prevail at the present stage: further development, improvement and adaptation of sets of values and their interpretations within the framework of specific approaches, and the integration of ideas and methods available in different approaches with the construction of new value systems. This has led to the conclusion that a new direction of research is developing, moving away from understanding values as a given rigid and stable register to studying them in dynamics, raising questions about their universality, allowing for contextual interpretation, and exploring their interaction with each other and changes at different stages of design. The results correlate with contemporary research, in particular on value dynamism, and can be used in the training of specialists in design and engineering-related fields in various areas of knowledge

Keywords: value-sensitive design; value-oriented design; value integration; value dynamics; design ethics

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Introduction

Scientific reflection on human existence in the modern world has led to a new round of critical analysis with a clear focus on the ethical component of human activity, its impact on the development of society, the harmonious existence of individuals and the state of the environment. Various approaches based on methods that prioritise ethics have appeared in scientific literature and design practice. Over the past decades, their number has grown significantly – increasingly, any value- and ethics-oriented approaches to design have come to be collectively referred to as ethical design. The problem of implementing ethical principles and values in design is not new, but with the development of digital technologies, it has become particularly relevant. The general concept of ethical design has a solid scientific basis, rooted in research approaches, the most well-known of which are: Value sensitive design, Value/Worth centred design, and Values-led participatory design. Other well-known approaches include Design justice, Reflective design, Positive design, Socially responsible design, Design for Care, Inclusive design, etc.

The large number of contemporary approaches, which is related to the relevance of the problem and the development of scientific thought on the subject of research, necessitates reviews of academic literature in order to systematise information. Thus, J. Donia & J. Shaw (2021), in a thorough review of ethical and value-oriented approaches to design, focused on their systematisation in terms of normative power and designer agency, concluding that it is advisable to take into account the contradictions that arise from balancing normatively “strong” approaches with the restrictions imposed on designer agency in corporate-oriented conditions when developing ethical design strategies. A. Gerdes & T. Frandsen (2023), focusing on a systematic review of the literature on value-sensitive design over the thirty-year history of the approach, concluded that there is a need to strengthen technical research and its adaptation in theoretical and applied studies.

Literature reviews demonstrate the development of both conceptual and empirical research on the outlined issues. In particular, M. Reber *et al.* (2019), having developed the fundamental characteristics of the key concept of value, proposed a descriptive model, ValueD, which describes the definition of value in design as a cognitive process that depends on the agent's knowledge. A series of works by I. Van de Poel (2024) is devoted to the scientific justification of the taxonomy of changes in values in design, the reasons for their emergence, adaptation and interaction, which encourages the rejection of the understanding of values as a predetermined list and requires further research into the integration of values in design as a scientific problem. Practical research also points to the relevance of this problem. S. Ghoshal & S. Dasgupta (2023), after critically analysing four practical cases, raised the question of the need to theorise the phenomenon of the blurring of values in design.

The rapid development of new technologies is forcing researchers to look for new ways to embody values in design. F. Longo *et al.* (2020), developing design strategies for Industry 5.0, demonstrated through analysis of real solutions and prototypes that a value-oriented approach helps in researching ethical issues arising from the implementation of technological solutions and supports the transition to symbiotic enterprises of the future. K. Tsunetomo *et al.* (2022), seeking value guidelines for designing intelligent product-service systems, note that despite a significant amount of research on the ethics of artificial intelligence, there is a lack of practical methodology for designing such systems, taking into account the positive and negative consequences of using digital technologies, as well as social and ethical values in the design process for the development of human-technology interaction, which requires the search for and integration of constructive ideas into existing approaches. M. Smits *et al.* (2022) expanded attempts to strengthen the foundations of design with values in mind, linking

them to the philosophy of technology, and proposed a new methodology, Values that Matter, which provides tools for evaluating moral mediation in the design process. It should be noted that most of the approaches developed belong to foreign researchers. In Ukrainian-language scientific discourse, this problem has hardly been developed: there have been isolated studies, among which it is worth noting the integrative approach to ethics by design proposed by T. Pavlova & R. Pavlov (2024), who recognise the problem of defining values and their conflict as one of the key challenges, noting that the further development of metaethics in the digital world requires the integration of different philosophical approaches.

Research confirms that at the present stage, the problem of defining values in design remains relevant. The diversity of approaches to its understanding and the heterogeneity and uncertainty of interpretations highlight the need for new research aimed at critically analysing the conceptual foundations of ethical design and the current state of knowledge on the outlined issues, which determined the purpose and relevance of this article. The aim of the study was to analyse approaches to the interpretation of ethical design values in contemporary scientific literature, which led to the following specific tasks: 1) to analyse scientific sources on the issue of integrating values into design; 2) to consider the leading approaches to defining the system of design values in scientific literature; 3) to identify current trends and trace the dynamics of the interpretation of values and their interaction in ethical design approaches.

Materials and Methods

In accordance with the objectives of the study, it was carried out in several stages. At the first stage, the key concepts of the study and criteria for searching for information were defined, and scientific sources on the outlined issues were selected. The main selection criteria were: 1) the focus of the research on the problem of integrating values into design; 2) the quality and authority of the

research, confirmed by citations in other scientific sources. The main sources for the targeted selection were the scientometric databases Scopus and Web of Science. The selection of publications in these databases was limited to English-language sources, so the search was conducted using the keywords: “ethical design”, “values and design”, “ethics and design”. An additional resource was the Academia Scholar search engine (the search was conducted using the same keywords, but in two languages: English and Ukrainian). The search had no strict geographical or chronological restrictions; the selected sources included both the latest works published in the last three years and those that became fundamental in the formation of various approaches and, accordingly, have the highest number of citations. Since there is no single generally accepted terminology for ethical design and different research traditions use different terms to refer to concepts used in this field, the method of tracking references and citations of sources in the selected works was also used to search for information. Given the specific goal, preference was given to qualitative rather than quantitative methods – the study is not a systematic review, so it does not claim to be a complete sample or to cover all available sources on the subject. Based on the title and abstract, an initial sample of 79 articles was selected. After a full-text review, 24 sources were selected that describe an ethical or value-oriented approach to design or consider various aspects of integrating values into design and have high citation indices. The source base consists of scientific articles, conference materials, and sections of monographs. Since the concept of ethical design is developing not only in scientific discourse but also in design practice, several journalistic articles were considered in the study. In the second stage, fragments containing information about values in design were analysed and documented in the selected sources, key ideas and main provisions were identified, a comparative analysis of the value systems proposed in different approaches was carried out, and areas of overlap and fundamental

differences were identified. The main methods at this stage were comparative analysis and synthesis for categorising concepts. At the third stage, based on the results of the analysis of scientific sources, the dynamics of the development of the interpretation of values in design were traced, critical views on the problem and controversial aspects were considered, trends in the definition of values and their systems/lists in modern scientific approaches were outlined, the connections and interactions between values within and outside these systems, and promising directions for further research. At this stage, the results of the study were summarised and final conclusions were formulated; the main methods were analysis, synthesis, systematisation and generalisation.

Results and Discussion

In this study, design is interpreted in a broad sense as a way of creating products, services and systems, as well as a mechanism for shaping the material environment in accordance with human needs and desires (Martynenko, 2021). There is no generally accepted definition of the concept of “ethical design” in contemporary scientific literature. In general, ethical design is understood as the creation of a product or service aimed at benefiting the individual user, their ecosystem and society (Nag, 2022), and the term is used to refer to ethical and value-oriented approaches in design. A distinctive feature of such design is its focus on the development of specific products, systems and services (rather than general technologies) and its emphasis on moral values (Van de Poel, 2024).

There is no consensus among scholars on the understanding of the very concept of “value” in design. As noted by M. Reber *et al.* (2021), over the decades, views on the value of design have changed in line with changes in the corporate competitive environment for product development. Early interpretations of design value, based on an understanding of product value from the manufacturer’s perspective, have evolved to encompass the consumer’s perspective in terms of

benefits, needs, quality, usefulness, and value of services. Different approaches to understanding the key concept and its uncertainty have highlighted the need to develop a theory of values in design. In this regard, researchers have proposed seven axioms that can be considered as general rules describing value in any context and conveying the fundamental characteristics of this phenomenon, namely: value is related to people, is the result of a cognitive process, requires a process of definition, is a matter of a specific situation, is determined by the interpretations of subjects, and is related to entities and criteria (Borisova, 2021).

The importance of understanding interpretations of value in the complex structure of sociological, economic and linguistic representations is also emphasised by N. Gulbransen-Diaz & L. Hepburn (2024) also emphasise the importance of understanding interpretations of value in the complex structure of sociological, economic and linguistic representations. After researching the leading narratives of value in design, they concluded that the strengths and limitations inherent in theories of sociological, economic and linguistic value are reflected in the corresponding design practices, and that a holistic understanding of them allows for a more critical evaluation of design methods and practices. Among the most authoritative scientific sources on ethics and values in design, the works of B. Friedman & D. Hendry (2019) – one of the ideologists of value-sensitive design, which is positioned as a theoretically sound approach to design that fundamentally and systematically takes human values into account throughout the design process. Despite the thorough theoretical justification and focus on values, its proponents tend to have a broad understanding of the key concept: values are what people or groups of people consider important in life. At the same time, these human values are ethically significant, not just individual preferences. As I. Van de Poel (2024) clarified, it is something that has grounds to be valued or should be valued from a normative or moral point of view. Within this

approach, a list of 13 human values important for design was proposed, including: human welfare; ownership and property; privacy; freedom from bias; universal usability; etc. At the same time, the researchers noted that the list is heuristic, does not claim to be exhaustive, and allows for contextual interpretation. Value-sensitive design is interactive and involves interaction between human values and technologies. Unlike approaches based on technological or social determinism, value-sensitive design cultivates the idea that people, acting as individuals, organisations or societies, shape the tools and technologies they develop and implement; at the same time, these tools and technologies shape human experience and society (Friedman & Hendry, 2019). Parallel to the emergence of the value-sensitive design approach, other concepts were also developing. The founder of the concept of open, or disclosive, computer ethics, P. Brey saw a progressive connection between it and value-sensitive design and tried to incorporate values into a comprehensive approach to computer ethics, identifying four key values: justice, autonomy, democracy, and privacy. Ultimately, he initiated a new approach – anticipatory emerging technology ethics, whose list of values included: rights and freedoms; autonomy; human dignity; privacy; property, etc. (La Fors *et al.*, 2019). K. La Fors *et al.* (2019), who studied the ethics of virtues in relation to new technologies, identified the following techno-moral values: honesty; self-control; humility; justice; courage; empathy; care; civility; flexibility; perspective; magnanimity; technomoral wisdom.

A slightly different view of values is presented in value-centred design, which has been positioned as a design philosophy with the overall

goal of providing value to the enterprise, the consumer and society, which lies not in the design artefacts themselves, but in their interpretation in a given situation, taking into account certain criteria. The logic and evolution of value-centred design was reviewed by G. Cockton (2020a), who considers values to be abstract representations that direct human behaviour and evaluation in a positive direction. Comparing the approaches of value-sensitive and value-centred design, G. Cockton (2020b) notes that the former originates from ethical values and extends to others, such as peace of mind, i.e., what people value regardless of moral obligations or imperatives, while the latter has a more open genesis, starting with value, i.e., what some people value, individually or collectively, regardless of ethics or the approval of others. The value-sensitive approach is more specific in defining the list of values but narrower in terms of the corresponding outcomes; the value-oriented approach is broader in considering the corresponding outcomes but more abstract in terms of the manifestations of value in the world. G. Cockton (2020a) developed general design values, formulating them in eight meta-principles, including: acquisitiveness; tenacity; expressivity; inclusiveness; etc. Ultimately, the author proposed renaming value-centred design to worth-centred design to avoid confusion, using the more morally and politically neutral word “worth” as a synonym (in all senses except connotations and associations) to the word “value”, and later to worth-focused design, adding another meta-principle – generosity. Although the above lists of values differ significantly depending on the approach, they often overlap in key areas (the correlation of values is shown in Table 1).

Table 1. *Values in ethical and value-oriented approaches to design*

Value sensitive design	Disclosive computer ethics	Anticipatory emerging technology ethics	Value/Worth-centered design
autonomy	autonomy	autonomy	acquisitiveness
privacy/ownership and property, informed consent	privacy	privacy, property	n/a
freedom from bias, universal usability	justice, democracy	distributive justice, rights and freedoms	inclusiveness, improbability, viability

Table 1. Continued

Value sensitive design	Disclosive computer ethics	Anticipatory emerging technology ethics	Value/Worth-centered design
human welfare, calmness, identity, courtesy, trust, accountability	n/a	well-being and the common good, human dignity, harms and risks	desirability, expressivity, tenacity, committedness
environmental sustainability	n/a	animal rights and welfare	n/a

Note: n/a – no data available on compliance

Source: developed by the author based on research by B. Friedman & D. Hendry (2019), K. La Fors et al. (2019), G. Cockton (2020a)

Another well-known approach is values-led participatory design. Unlike values-sensitive design, this approach does not consider values as something universal, listed in a specific catalogue. At the same time, this approach also differs from value-oriented design, which tends to view value as price or cost. As its name suggests, it developed within participatory design with the actualisation of the value component. Within this approach, values are defined as stable beliefs held about desirable ways of behaving or ultimate states of being in different situations, societies, and cultural contexts (Gulbransen-Diaz & Hepburn, 2024). This is an approach that takes into account the values of users and stakeholders in design in a dialogical process that cultivates the emergence of values, their development and implementation in practice (Donia & Shaw, 2021). That is, values are not fixed but emerge in collaboration with stakeholders.

The significant number of interpretations of values motivates researchers to search for universal tools to define them. S. Kheirandish et al. (2020) conducted an empirical study to develop a comprehensive framework of values for design. The survey results identified nine value groups: “carefulness”; “justice”; “ecology”; “respect for others”; “meaningfulness”; “status”; “pleasure”; “respect for oneself”; “personal development”. As a result of cluster analysis of the data, a value framework was developed with four themes, nine value groups, 42 key values, and 135 additional values. According to the developers, this framework provides a comprehensive view of human values and can be used as a common basis for

different approaches to design. Despite different interpretations of values in the approaches considered, each of them has developed both in scientific discourse and in design practice. The key ideas of the main approaches have undergone certain changes in recent years. For example, the value-sensitive approach has been significantly improved, in particular, much effort has been made to overcome criticism regarding the lack of a normative basis. The list of values proposed within this approach has been revised several times. It has most often been criticised for its heuristic nature. The ideologists of this approach, B. Friedman & D. Hendry (2019), while acknowledging that providing any specific heuristic list of human values risks privileging or reifying them over others and cannot be complete, remain committed to the need to articulate them, because without naming human values and working definitions, the opportunity to legitimise certain human values in the development of technologies or at least to discuss them is lost, as is the opportunity to build on previous work, so that each new attempt will require defining values from scratch. The researchers emphasised that the proposed specific list contained many traditional values that depend on deontological and consequentialist moral orientations: human well-being, ownership and property, privacy, etc., and several non-traditional values, such as identity, peace of mind, and environmental sustainability, illustrating how dynamic and adaptive a general framework of human values and ethics in design can be. Another direction that has begun to be actively

developed within this approach is the interaction of values in design. After all, human values do not exist in isolation, requiring their understanding in the complex interrelationship of human life and activity. Within the framework of value-sensitive design, the interconnection of human values in the design process has been formulated in different ways: first in terms of design compromises, then as value conflicts, and more recently as value differences or contradictions. According to B. Friedman & D. Hendry (2019), value-sensitive design in its modern interpretation drives practice in important directions, encouraging designers to conceptualise the shortcomings in contemporary design processes and seek solutions that promote human well-being, and to consider human values as a design criterion.

Another reason for criticising value-sensitive design was that it did not provide an adequate method for resolving value conflicts. A. Kozlovski (2022) considers several such methods, which, despite advantages, have a significant drawback: the common source of value conflicts, namely value incompatibility, is not taken into account. Justifying this concept and drawing on research in the field of axiology, the researcher offers his own solution to the problem by introducing an evaluative relationship of "parity" to optimise specific methods and the methodology of value-sensitive design in general. For a long time, it was believed that values are stable during the design, implementation and use of a product or system. I. Van De Poel (2024) developed a hierarchy of values consisting of three main levels: design requirements, norms and values. Exploring the relationship between values, norms and design requirements, the researcher developed a taxonomy of value change, identifying five types of change caused by various factors, including: the emergence of new values, changes in the priority or relative importance of values, or changes in which values are relevant to the design of a particular technology, or how they are conceptualised and specialised and transformed into norms and design requirements

(unlike conceptualisation, specification refers to how a value is understood in a particular case, depending more on the context and the type of technology being developed). Ultimately, I. Van De Poel (2024) proposed an integrated approach called Design for Values, which combines value-sensitive design, value-oriented engineering, design ethics, and approaches focused on specific values. These approaches have three characteristic features: an emphasis on moral values; the goal of proactively considering values in the design of new technological products, services, and systems; and systematic attention to values throughout the design process. Design for Values aims to actively integrate moral values into design, such as justice, sustainability, autonomy, privacy, and security, and encompasses various academic disciplines, combining expertise in design, engineering, social sciences, and philosophy.

A notable trend in contemporary research is the comprehensive application of ideas and methodologies from different approaches, taking into account their positive and negative aspects. G. Cockton (2020b) believes that interdisciplinary design should balance and integrate the approaches of several practices, which is facilitated by a common foundation, and value provides a productive focus for this common foundation. K. La Fors *et al.* (2019), researching values in the context of new big data technologies, integrated values from different approaches: value-sensitive design, technomoral values, anticipatory ethics of new technologies, and biomedical ethics. As a result, the researchers formulated a list of ten values for the design of new big data technologies, which include: human welfare; autonomy; non-maleficence; justice; accountability; trustworthiness; privacy; dignity; solidarity; environmental welfare. F. Longo *et al.* (2020), anticipating a new revolutionary wave in the industrial sector – Industry 5.0, or the Age of Augmentation, when humans and machines collaborate in symbiosis with each other, based on a rethinking of existing approaches, in particular value-sensitive, value-oriented, anticipatory ethics of new

technologies, etc., developed a list of human values that should be adhered to during techno-social changes towards the symbiosis of humans and machines in Industry 5.0, including: self-actualisation; accountability; trustworthiness; privacy; welfare; autonomy; altruism; common good; security; stimulation; sociability; identity; authority; conformity. K. Tsunetomo *et al.* (2022) combined the ideas of value-sensitive, participatory and systemic approaches in the design of intelligent product-service systems. In particular, they developed a typology of 22 values for the design of intelligent product-service systems. From the canonical list of values of value-sensitive design, the researchers adapted 11 (some under a different name): autonomy; accountability; courtesy; ownership and property; accessibility; fairness; privacy; trust; identity; well-being; ecological benefit. They added 11 more: efficiency; excellence; positive status; self-esteem; enjoyment; aesthetics; escapism; novelty; relational benefit; sense of control; safety, proposed by S. Leroi-Werelds (2019) taking into account the development of digital technologies. The researcher notes that the typology does not aim to cover all types of values, but instead offers different perspectives that may be useful for conceptual research, taking into account the social and ethical impact on the design of intelligent product-service systems (Tsunetomo *et al.*, 2022).

K. Jenkins *et al.* (2020) also emphasise the feasibility of synthesising different approaches, in particular value-sensitive design, responsible research and innovation, and energy justice, to create energy systems. According to the researchers, the isolated existence of these approaches has overshadowed their complementarity, which, if synthesised, could increase their overall academic and practical significance. In particular, a flexible methodology of value-sensitive design can be used to define value priorities and translate them into specific design requirements. An integrative approach to ethics by design, which takes into account changes in subject-object relations in the digital age, was proposed by T. Pavlova &

R. Pavlov (2024). The approach aims to expand the capabilities of existing ethical design models and explores new perspectives for creating ethically responsible digital technologies. The researchers propose to consider ethics not only as a set of norms or theories, but also as ontology – a way of being in the world, which in the digital age is closely intertwined with technological mediations.

The studies reviewed showed significant changes in the development of ethical design approaches. The results correlate with contemporary research, in particular with the provisions expressed by O. Kudina (2019), who, after studying the role of technology in the interpretation of human values, drew attention to the phenomenon of value dynamism, or the fluidity of values, which encompasses how technologies actualise existing values, affirm them, cause them to be re-evaluated, or contribute to a new understanding of values. These ideas were developed by I. Van De Poel & O. Kudina (2022), who proposed a pragmatic explanation of value change, according to which values are understood primarily as “evaluative devices” that are transferred from previous experience and are to some extent shared in society, and within this explanation, they considered three ideal-typical processes of value change: value dynamism, value adaptation, and value emergence. This explanation suggests that value change may sometimes be necessary to adequately address new uncertain or problematic situations. The researchers noted that every transformation of an uncertain situation into a certain one, even if it is temporarily successful, can also give rise to new uncertain situations and, therefore, the need for new values and research. S. Ghoshal & S. Dasgupta (2023) described the phenomenon of value erosion, emphasising that solving the problem must be a long-term and ongoing task in the design and use of technologies, since values in design are not only embedded but, being dynamic, can change. Thus, the diversity of approaches to ethical and value-oriented design indicates a growing focus on integrating human values into the design process,

which ensures not only technological efficiency but also social responsibility and ethical soundness of design solutions.

Conclusions

An analysis of scientific sources confirmed the relevance of issues related to the implementation of ethical principles and moral values in the design of products, services and systems for modern science, and revealed significant changes in the development of approaches to study. The scientific sources selected at the first stage demonstrated that modern research develops both the theoretical foundations of the problem of integrating values into design and the practical aspects of their implementation. Further analysis of the sources made it possible to consider the dynamics of the development of the interpretation of values in design, identify controversial aspects and outline trends in the definition of values and their systems in modern scientific approaches. The generalisation of the results made it possible to conclude that the development of the problem of values in design is marked not only by quantitative progress, as evidenced by the growing number of ethics- and value-oriented approaches, but also qualitative progress, which encompasses the development and rethinking of key provisions and the search for opportunities to integrate them with the methods of other approaches.

Despite the significant diversity of research directions, the conceptual and methodological basis for new approaches remains value-sensitive, value-oriented and participatory, which today have

the most sound theoretical basis and effective methodologies. While at the stage of formation these approaches had predefined lists of universal values, at the present stage of research they are evolving towards the study of the dynamics of values, their emergence, changes, adaptation, factors causing these phenomena, as well as the interaction of values: compromises, disagreements, conflicts.

An analysis of contemporary scientific literature has revealed two main trends in the interpretation of values in design: 1) further development and improvement of the conceptual provisions of the approach, justification of normative principles, filling theoretical gaps, developing methodologies and testing their effectiveness; 2) integration of key ideas, as well as strengths and advantages in the methodologies of different approaches with the construction of new flexible value systems. Recognition of the dynamic and changing nature of values and the possibility of their contextual interpretation opens up a wide field for further research, promising areas of which include the study of the implementation of theoretical and methodological developments in applied research and design practice.

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None.

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Трансформації цінностей у підходах етичного дизайну

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Анотація. Буття людини в технологізованому світі спонукало науковців до всебічного осмислення проблеми інтегрування людських цінностей у процеси проектування продуктів, послуг та систем, що зумовило появу і стрімке зростання кількості різних етикоорієнтованих підходів до дизайну. Метою статті було проаналізувати тенденції інтерпретації цінностей у підходах етичного дизайну в сучасних наукових джерелах. Загальна стратегія до визначення релевантних публікацій ґрунтувалася на цілеспрямованій тематичній вибірці у наукометричних базах даних за допомогою якісних методів. У результаті аналізу відібраних джерел виявлено і систематизовано ключові положення щодо цінностей та їх інтегрування у дизайні з точки зору сучасних підходів. З'ясовано, що хоча розглянуті системи цінностей суттєво відрізняються залежно від фокусу концепції, вони часто збігаються у ключових моментах, виходячи з фундаментальних етичних положень. Дослідження розвитку підходів до інтерпретації цінностей у дизайні показали, що на сучасному етапі превалюють дві основні тенденції: подальше розроблення, удосконалення й адаптація наборів цінностей та їх тлумачень у межах визначених підходів та інтеграція ідей і методів, наявних у різних підходах, з побудовою нових систем цінностей. Це дозволило зробити висновок про те, що набуває розвитку напрям досліджень, які переходять від розуміння цінностей як заданого жорсткого і сталого реєстру до їх вивчення в динаміці, порушуючи питання про їх універсальність, допускаючи контекстну інтерпретацію, досліджуючи їх взаємодію між собою та зміни на різних етапах проектування. Результати корелюють із сучасними дослідженнями, зокрема із ціннісного динамізму, і можуть бути використані у підготовці фахівців спеціальностей, пов'язаних із дизайном і проектуванням, різних галузей знань

Ключові слова: ціннісно-чутливий дизайн; ціннісно-орієнтований дизайн; інтегрування цінностей; ціннісна динаміка; етика дизайну

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