Trends and challenges in implementing media education in Ukraine

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Abstract. This paper examines the importance and current state of media education in Ukraine. It discusses the need to develop media literacy skills in both students and teachers in today's information society. The paper overviews efforts to implement media education in Ukraine, including introducing relevant concepts and experimental courses. It analyses pedagogical aspects of preparing future computer science teachers to teach media literacy, such as developing their motivational, cognitive, interpretative-creative, and other relevant skills. The paper also identifies existing challenges and problems hindering the advancement of media education in Ukraine. It concludes that despite difficulties, the initial positive steps give hope for further successful development of media education in the country.

Keywords: media education, media literacy, Ukraine, computer science teachers, pedagogy, critical thinking

1. Introduction

The rapid development of information and communication technologies in the 21st century has led to exponential growth in information available to people. This "information explosion" has fundamentally changed how we live, work, study, communicate and access knowledge. However, the sheer volume of information can be overwhelming, and it becomes vitally important to develop skills to navigate this complex information landscape [11].

This is where media education and media literacy become crucial. Media education teaches people to access, analyse, evaluate and create media content in various formats. It equips them with critical thinking abilities to understand the media's messages, assess their reliability and make informed decisions. Media literacy enables individuals to comprehend the impact of media on attitudes, behaviours and values. It empowers them to use media intelligently and ethically [44].

In today's mediated world, media education is essential to the learning process at all levels – from primary schools to universities. It is imperative to teach future teachers, who will then impart these vital skills to their students [27]. Media literacy enhances the quality of education and allows the utilisation of media's potential for effective teaching and learning [30].

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The study of this issue is impossible without the contribution of scientists who focused on identifying the fundamentals of media education and media literacy. For our research the works of Buckingham [3], Considine [6], Masterman [17], Nazarov, Ivanov and Kublitskaya [21], Onkovich [22], Ostapenko and Solovyova [26], Sharikov [32], Yankovych et al. [45] are of great value. Research works of ascertaining character, which contain information on the perception of media texts in different countries and by different age categories, on the criteria and levels of audience development are done by Levshina [15], Tereshchuk et al. [40], Tyner [41], etc.

Like many other countries, Ukraine recognises the significance of media education in the information age. Efforts are being made to integrate media literacy into school and university curricula. However, there are still challenges in implementing media education comprehensively and systematically.

This paper analyses the importance, current state and prospects of media education in Ukraine. It focuses specifically on media literacy training for future computer science teachers. Developing these teachers' media competence is crucial as they deal directly with information technologies. The paper reviews pedagogical approaches, skills and criteria for effective media education of future computer science teachers. It also examines persisting problems hindering the advancement of media literacy. The paper aims to conceptualise strategies and recommendations for improving media education in Ukraine.

2. Features of the introduction of media education in modern society

Nowadays, a person is required not to master some unique information but to be able to navigate information flows, be mobile, learn new technologies, self-learn, search for and use missing knowledge or other resources. In this regard, there appears an issue of studying the development of media education, whose main task is "to prepare a new generation of people for the life in modern information conditions, for the high-quality perception of information and mastering communication methods through technical means and modern information technologies" and to develop soft skills (sociability, self-presentation, ability to work in a team). It is worth noting that media education remains fragmented in most Ukrainian higher education institutions, which actualises the desire to implement an effective media education system in Ukraine that can improve the educational process and guarantee the European quality of higher education. Media education contributes to establishing democracy and the education of media-literate individuals who can think critically, develop creative skills and are ready to live in a modern information society [33].

The critical skills now considered a basis of education and should be embedded in the curricula are available to every modern person. After all, humanity is developing rapidly, replacing many hard skills with robotics, neural networks, and artificial intelligence [18, 19]. There is a tendency for people to be replaced by artificial intelligence in many areas of their activity. Neural networks, which are able not just to communicate with a person, answering questions, but to joke in response and even anticipate the continuation of the dialogue; works of art created by artificial intelligence, cars with complete autopilot – all these factors become a reality that cannot be

ignored [31, 39]. In the future, all the physical capabilities of a man can be replaced by a robot. However, artificial intelligence lacks human skills (the robot cannot think emotionally), so a person still has some preferences, such as emotions and professional communication skills. This means that media education, as a process that allows one to immerse oneself in the training of key skills, is an educational process that is most relevant today. For example, some leading European schools have integrated soft skills into learning. There is a focus on severe theoretical and practical training in all areas of media education, making the educational process exciting and compelling.

The relevance of media education depends on the rapid development of informatisation and globalisation, which have made our perception of the world dependent on how the media presents it. Unfortunately, the latter does not respond appropriately to the growing responsibility: the information is poorly checked and contains elements of manipulation and fraud. In these conditions, media education is a way for people to develop the ability to protect themselves from unscrupulous media information.

Media education as an intellectual and communicative network can be researched from several points of view. In particular, on the one hand, we can talk about the peculiarities of the mass media network (global, state, regional, etc.). However, on the other hand, a network of purely media education is more and more discussed, as it covers an increasing scope of information and educational space and is aimed at personal development. Many scholars consider media education as a learning process, mastering media literacy. Media literacy is the ability to use, analyse and evaluate media products. Some researchers define "media literacy" as a key concept of media education. In contrast, the concepts of "media literacy" and "media education" are considered synonyms by many educators and researchers. Media literacy makes it possible to use media sources more effectively, which generally increases both media competence and competence in its broader sense [23].

Fedorov [7] gives the following definition of media education: it is a process of personal development with the help and on the material of the media in order to form a culture of communication with the media, develop creative, communicative skills, critical thinking, skills of perception, interpretation, analysis and evaluation of media texts, to acquire different forms of self-expression with the help of media techniques.

Media education should increase the level of media literacy, which is a set of motives, knowledge, skills and abilities that contribute to the selection, use, critical analysis, evaluation, design and dissemination of media texts of various forms and genres; it also promotes the ability to analyse complex media processes in the society.

Media education is a part of the fundamental rights of every citizen in every country of the world to freedom of expression and access to information, an instrument for the development and observance of democracy. Media education is related to studying all media communications and includes the printed word, graphics, sound and moving images delivered by any technology. Media education provides an opportunity to understand the methods of mass media used in society and to master the skills of using these media in communication with others [11].

One of the most reputable media educators and media theorists Masterman [16] has substantiated seven reasons for the priority and relevance of media education in the modern world:

1. High media consumption and saturation of modern society with mass media.
2. Ideological importance of the media and its impact as an industry on the public consciousness.
3. Rapid growth in media information, strengthening mechanisms for its management and dissemination.
4. Intensification of media penetration into the main democratic processes.
5. Increase the importance of visual communication and information in all areas.
6. Need to teach schoolchildren/students focusing on compliance with future requirements.
7. Growth of national and international processes of information privatisation.

Onkovych [24] notes that the stakeholders of media education should not be limited only to students: media literacy is also needed by adults. In addition, she reasonably draws attention to the need for independent media education. In her theoretical concept Onkovych [25], she puts forward the ideas of media didactics.

Since children and young people are most exposed to information, adults (in particular, teachers and parents) must be able to manage the process of a child's entry into the information world. In order to do this, the adults must first learn to use information flows properly to master the means of communication. Only under these conditions will teachers and parents be able to effectively prepare children and youth for conscious, competent, and, most importantly, safe use of information resources. They should also develop the culture of information users.

Therefore, today, media education is a rather serious and deep issue of education development in general. It is a part of the educational process aimed at the formation of media culture in society and preparation of individuals for interaction with the modern media system – and not only with traditional media (printed word, radio, cinema, television) but also with the latest technologies (communication via computer and the Internet) [20].

Accordingly, the education system faces the task of forming and developing students' competencies that allow them to interact with numerous information sources and flows effectively, analyse the information received, and assess its reliability and usefulness in solving various life problems. Media education has to achieve this goal. The concept of implementation of media education in Ukraine defines media education as "a part of the educational process aimed at the formation of media culture in the society, preparation of individuals for safe and effective interaction with the modern media system, including both traditional (printed word, radio, cinema, television) and new (computer-mediated communication, Internet, mobile telephony) media" [5]. Therefore, the immediate task of media education is forming essential skills such as structuring and analysing information received from various sources, determining reliability and quality assessment, and highlighting the most critical aspects of media messages.

The introduction of media education in Ukraine is also due to the urgent task of our country's entry into the single European educational and information space. It should also be noted that the issue of media education is traditionally given the most attention in European countries (along with Canada, the United States and Australia).

Media education in Ukraine is currently at the beginning of an active phase of its development. In June 1999, according to the resolution of the Academic Council of Ivan Franko Lviv National University, the Institute of Ecology of Mass Information was founded. Its founders consider media ecology a synthesis of philosophical-academic and purely applied work directions connected

with neutralising pathogenic information streams. Research topics required an interdisciplinary approach and were mainly focused on training media professionals. Ten years later, in 2009, at V.N. Karazin Kharkiv National University, a new Department of Media Communications was opened, and an experimental Master's program was launched.

Media ecology is increasingly being introduced into teaching practice in higher and secondary schools. There are also positive changes in conceptual approaches that meet European and global trends: if at first the attention of domestic experts was focused on the "detrimental impact of the media and the Internet", now positive approach is becoming more common, which primarily involves learning to interact effectively with various types of information (including protection against possible negative impact).

Since 2010, the already mentioned Concept of implementation of media education in Ukraine [5] came into force. Its aim is "to promote the development of an effective media education system in Ukraine in order to ensure comprehensive preparation of children and youth for the safe and effective interaction with the modern media system, development of their media awareness, media literacy and media competence in accordance with their age and individual characteristics". By 2020, the concept envisages the implementation of the experimental phase, the gradual introduction of media education and standardisation of requirements (2014–2016), further development of media education, and completion of its mass implementation (2017–2020).

Priority areas for the development of an effective media education system in Ukraine include "the creation of a school media education system, which provides for the development of psychologically sound primary school curricula for integrated education, promoting the integration of media education elements into various subjects syllabi, design of optional media education programs for adolescents" and comprehensive training of the teaching staff [5].

In this regard, it is worth noting a very positive trend – the introduction of media education in the domestic education system is planned in close connection with existing courses. The provisions of the Concept have already been entirely actively implemented in practice. A positive fact is that media education is implemented in cooperation with the Ministry of Education and Science of Ukraine, scientists of the National Academy of Educational Sciences of Ukraine and representatives of professional public organisations, especially the Academy of Ukrainian Press, which, in particular, did a significant part of the work on the textbook "Media Education and Media Literacy" [11], which was specially designed to provide an appropriate course in higher education institutions and the system of postgraduate teacher training.

Based on scientific research, the stages of the formation of future computer science teachers' media competence in their professional training in pedagogical universities have been identified.

The *first stage* includes the formation of motives and value orientations. It consists of the following operations: motivation to action, understanding the significance of the problem, identification of motives and their consolidation.

The *second stage* involves the development of future computer science teachers' ability to comprehend the content of the media competence formation. It consists of theoretical, research-reproductive and interpretive-creative periods. The theoretical period performs an informational, orientation and developmental function. It aims to master the general content of media competence through such forms as lectures, seminars, consultations, interviews, explanations, problem-based presentations of the material, and teaching aids such as syllabi

and videos. An unconscious manifestation of media competence characterises the research-reproductive period. So that students will be able to outgrow this phenomenon, the teacher uses such forms as practical classes, lectures, seminars, consultations, training, explanations, learning experiences, project works and such teaching aids as publications, videos, various media texts, etc.

The interpretive-creative period of the stage of mastering the content of the formation of future computer science teachers' media competence performs developmental, educational, and training functions. It is carried out to gain experience in working with the media through the use of such forms as practical and laboratory classes, future computer science teachers' independent work in studying the professional-oriented disciplines, methods of modelling, problem and business games, etc.

The *third stage* deals with monitoring the formation of future computer science teachers' media competence during their training.

The *fourth stage*, evaluative-corrective, involves collecting and accumulating data on the level of media competence formation with further processing and analysis of data in order to identify the need for corrective actions.

In order to identify the effectiveness of the introduction of media education and the formation of future computer science teachers' media competence, it is necessary to single out the components, criteria, levels and indicators of the formation of future computer science teachers' media competence.

In the scientific literature, the problem of criteria is solved ambiguously. Kazakova [12] shows a lack of generally accepted criteria for "effective pedagogy" or the ways to determine the teacher's and student's "quality of work", criteria for the effectiveness of each stage of personality development.

Chechel [4] has defined the criteria as follows: "These are the properties of the object which provide it with an interconnected system of characteristics; that is why they become a subject for evaluation. It is possible to detect such a system only on the condition of using a system-structural approach". The following requirements are set for the criteria:

a) objectivity;
b) stability and sustainability;
c) recurrence in the subject;
d) the ability to establish the degree of conformity of the subject to its ideal.

Gal'perin [10], Podlasyi [28], Usova [42] etc. have established various criteria for forming educational and cognitive skills. "Since each activity consists of a system of elementary actions and operations, composition and quality of operations, awareness of them, completeness and coagulation can be identified as the main criteria common to all cognitive skills" [43].

Scientists who have studied the formation of professional skills identify different criteria: Andrukhiv [1] – value-semantic, action-related, and cognitive criteria; Kuchugurova [14] – awareness of actions and their correctness; Suvorova [37] – degree of awareness of the actions performed, quality of actions performed, ability to apply skills in a new changed environment; Sukhodolsky [36] – criteria of axiology, variability, motivation.

Considering the analysis of research done by media educators (research done by Bondarenko [2], Sysoieva [38], etc.), it should be noted that the classification of levels of media competence

can be even more detailed. One of these options is proposed by Khilko [13]:

1) recreational and hedonistic level of media perception (limited by entertaining motivation aesthetic comprehension of the image);
2) household level (household, utilitarian motivation and corresponding characters);
3) aesthetic level (personal motivation, aesthetic comprehension of the image);
4) interpretative level (revealing the personal meaning and spiritual content of the piece of work, a vivid expression of inner vision);
5) microsocial level (manifested in connection with the microenvironment, psychological motivations of the characters are given, and connection with the perception of works by a particular audience is established);
6) macrosocial level (provides a critical analysis of the problem and its deployment in time and space, orientation for the society);
7) level of artistic image awareness (detailed description of the screen image, its components, and selection of semantic units of the story);
8) level of the author's concept understanding (the ability to conclude what idea the author wanted to convey based on the system of artistic perception of the piece of work);
9) level of personal concept emergence (autonomous) and the formation of autonomous vision: individual conclusions on the problem touched upon by the author and polemical dialogue with the author's concept.

After analysing the scientific and pedagogical literature, we have concluded that there are several recurring criteria mentioned above: motivational (motivation to develop the skills, awareness of the importance of these skills in the structure of the professional activity), action-related (level of skills necessary for professional activity, professional literacy, ability to transfer skills to changing situations), personal (formation of professionally significant traits of personality, character traits).

Based on this, let us take these criteria as a foundation but clarify them considering the specifics of organisational and pedagogical activities. The creative nature of this activity complicates the assessment of the future teacher's work.

In addition, the outcomes of the formation of future computer science teachers' media competence will be manifested later in the professional activity.

Educational and pedagogical activities require knowledge of the means and methods of resisting the manipulation of various media resources and patterns of behaviour, which are necessary for successful pedagogical activity, especially for computer science teachers, because their work is inextricably linked to modern information technology. Thus, among the criteria for the formation of future computer science teachers' media competence, we should mention action-related and interpretative-creative criteria – a system of knowledge on the ways and means of resisting media manipulation, application of critical thinking skills when working with information of various types and selection of a system of necessary actions. The criteria of effectiveness include indicators that reflect the objective side of the activity outcomes and the subjective attitude of students to this activity. The criteria system should be unified, i.e. all indicators included in it in terms of content and mathematical expression should not oppose each other [9].

Successful implementation of various activities requires the orientation of the personality for the value-oriented attitude, interest, and awareness of personal and social significance. As a result, the next criterion for forming future computer science teachers' media competence is a motivational one.

Cognitive criterion combines a system of knowledge on the features of the media and reflects the theoretical side of students' learning; ability to identify the causes and patterns, which will increase the efficiency of the educational process; ability to reveal contradictions that give rise to the research problem; ability to get innovative experience in order to find ways and means to increase the efficiency of the educational process; ability to observe, analyse and generalise; awareness of professional self-development and personal self-improvement which include professionally important qualities; ability to perceive the media, which the level of formation of media competence depends on; ability to find, use, deliver, and put into practice the theoretical and practical knowledge.

Friedman [8] notes that "any mental activity should have these three components (in particular, need-motivational, operational-active, reflexive-evaluative), and the most important task of education is to teach students to organise their activity as a full-fledged, mental, in which all three components are balanced, sufficiently developed, realised and fully implemented".

In order to identify the criteria for assessing the effectiveness of students' learning, we consider it necessary to consider the main areas of personality, namely needs-motivational, operational and criterial-evaluative. Let us try to give a brief description of the selected areas.

The needs-motivational sphere of personality is an integral quality characterised by social guidelines, value orientations, and interests that form the basis of motives.

The operational sphere of the individual's activity is an integral quality characterised by common and special knowledge, skills and abilities.

The next criterion that helps identify the outcomes and analyse one's activity is reflexive. It is necessarily included in human activity and aimed at understanding one's actions and deeds. Reflection-based self-analysis and self-assessment provide control, the ability for self-cognition, and the ability to analyse one's actions, deeds, motives, correction and self-improvement; it actively cultivates individuality and creative potential [34].

Thus, based on the analysed scientific and pedagogical literature and following the specifics of the pedagogical activity of computer science teachers, we have identified the following criteria for the formation of future computer science teachers' media competence (figure 1): motivational; interpretative-creative; cognitive; action-related; reflexive.

It is possible to speak about the formation of future computer science teachers' media competence based on a comparison of indicators and levels of media educational abilities and skills received at the initial and final stages of the experiment.

The classification of indicators of personality's media competence has been designed by us (figure 2). When developing the classification of the formation of future computer science teachers' media competence, we also took into account the characteristics of high and low levels, presented by Potter [29].

Characteristics of a high level of media competence formation [29]: the ability to get the central meaning of the media text; analysis: identification of the main elements of the media text; comparison: identification of similar and unique fragments of media text; assessment of the value of the media text or its fragment; judgments based on the comparison against particular
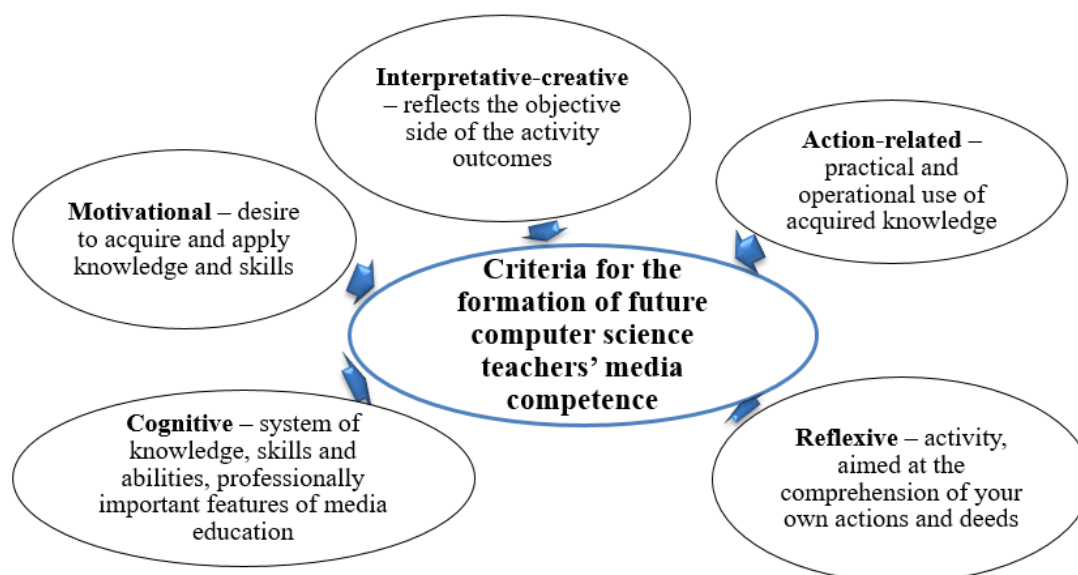
Figure 1: Criteria for forming future computer science teachers' media competence.

criterion; abstracting: ability to provide a short, clear and accurate description of the media text; generalisation; deduction: use of general principles to explain specific information; induction: derivation of general principles based on the observation of single pieces of information; synthesis: ability to reassemble elements into a new structure.

Characteristics of a low level of media competence development [29]: low level of intelligence (in terms of problem solving and creativity), feeling that "everything goes in its turn"; weak memory when a person sometimes can remember only significant things (for example, the night before the exam); thematic dependence, lack of insight, i.e. lack of understanding of what is essential in the messages; need for a mentor, assistant, handbook, or guide while studying; low level of tolerance to the ambiguity of media texts, uncertainty; weak conceptual differentiation when having a few categories of messages; negative attitude to new messages that do not correspond to the usual categories or simplification of this media text – transferring it to the most straightforward category; high impulsiveness of quickly made decisions with sacrifice of accuracy.

Let us find out what indicators characterise each of the selected criteria (figure 2):

- Indicators of the motivational criterion are: a high level of motivation to learn and awareness of positive motivation lead to the active use of methods of critical analysis in professional activity; need to master media competence and understand its role in achieving professional success; motivation to develop skills that allow you to operate with any information freely and correctly (receive, analyse, synthesise), cognitive need; formation and manifestation of personal qualities (persistence, purposefulness, endurance, self-control, emotionality) and professionally essential qualities (constructive (ability to set the goal and objectives of the educational process taking into account current trends in media development and dissemination; ability to identify such forms and methods
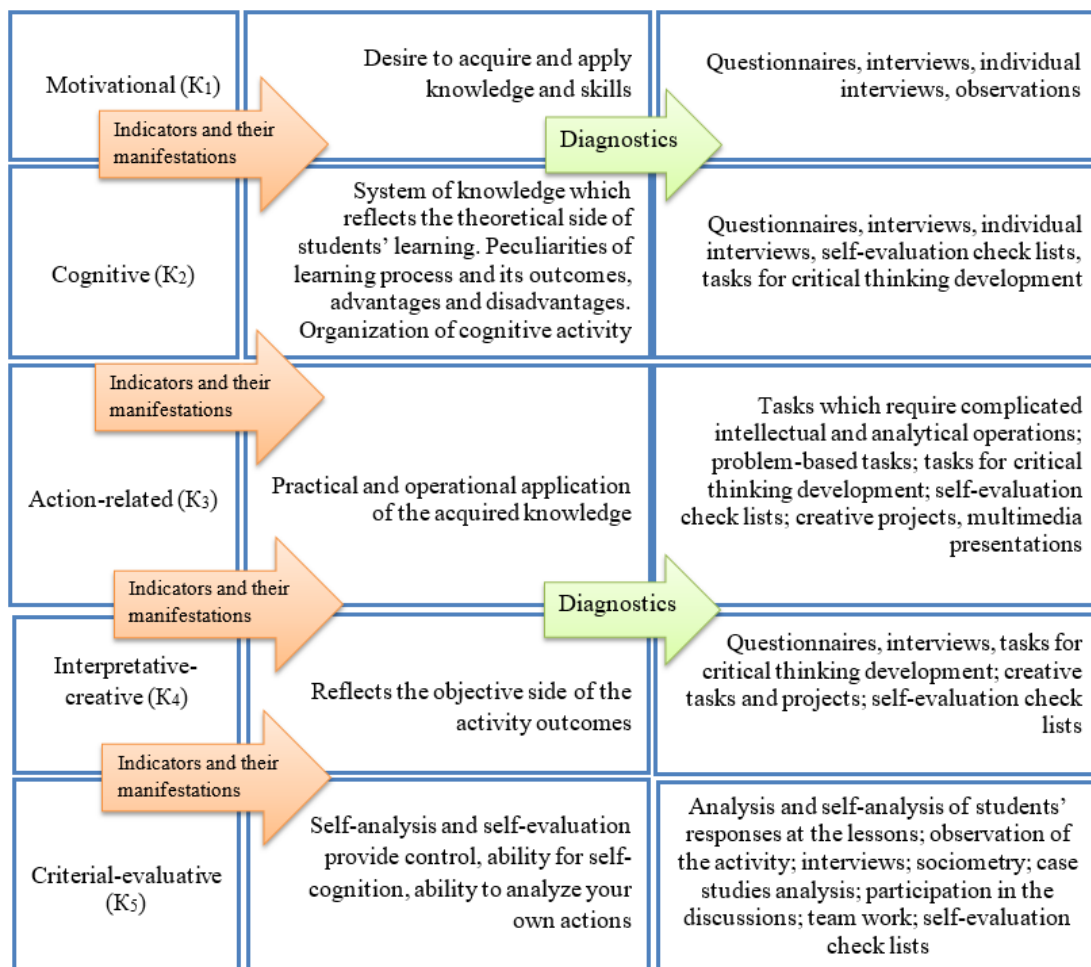
Motivational (K1)	Desire to acquire and apply knowledge and skills	Questionnaires, interviews, individual interviews, observations
Indicators and their manifestations →	**Diagnostics** →	
Cognitive (K2)	System of knowledge which reflects the theoretical side of students' learning. Peculiarities of learning process and its outcomes, advantages and disadvantages. Organization of cognitive activity	Questionnaires, interviews, individual interviews, self-evaluation check lists, tasks for critical thinking development
Indicators and their manifestations →		
Action-related (K3)	Practical and operational application of the acquired knowledge	Tasks which require complicated intellectual and analytical operations; problem-based tasks; tasks for critical thinking development; self-evaluation check lists; creative projects, multimedia presentations
Indicators and their manifestations →	**Diagnostics** →	
Interpretative-creative (K4)	Reflects the objective side of the activity outcomes	Questionnaires, interviews, tasks for critical thinking development; creative tasks and projects; self-evaluation check lists
Indicators and their manifestations →		
Criterial-evaluative (K5)	Self-analysis and self-evaluation provide control, ability for self-cognition, ability to analyze your own actions	Analysis and self-analysis of students' responses at the lessons; observation of the activity; interviews; sociometry; case studies analysis; participation in the discussions; team work; self-evaluation check lists

Figure 2: The criteria system for forming future computer science teachers' media competence.

of educational work that will help to achieve the goal), cognitive (desire to be engaged in continuous professional development and self-improvement, analysis of pedagogical experience, wish to expand the range of your own knowledge, ability to freely navigate in the content of the educational process).

- Indicators of the cognitive criterion are the amount of knowledge acquired, the ability to identify the causes and patterns which will increase the efficiency of the educational process using media technology, awareness of acquired knowledge, the ability to reveal contradictions and resist various manipulations and as a result to create a research problem, the ability to predict the outcomes of learning and plan the activities of students, which will contribute to the achievement of the outcomes, the ability to study and analyse the activities of media educators, different types and genres of media texts, in order to find ways and means to increase the effectiveness of the educational process.
- Indicators of the interpretative-creative criterion are the ability to apply a critical analysis

of the media and various media texts functioning in the society, the ability to apply existing knowledge in the context of any particular media text, the ability to draw parallels during critical analysis; development of creative potential in various aspects of activities related to the media (gaming, art, research, etc.).

- The indicators of the action-related criterion are mastering a set of actions that allow one to critically analyse existing media, distribute and design one's own media texts, the ability to put the acquired knowledge into practice, and the desire for self-education in the media field.
- Indicators of the criterial-evaluative criterion are the ability to identify the effectiveness of the media product and feasibility of its use, the ability to subjectively evaluate the results of own activities, the ability to assess the compliance of used pedagogical technologies (technologies for critical thinking development, information technology, distance learning technology, etc.) to modern requirements.

Levels of effectiveness of learning can be theoretically substantiated according to a five-point scale: negative (very low), passive (low), moderately active (satisfactory), active-productive (high) and creative (very high). However, it is possible to limit it to a three-point scale of the level of formation of future computer science teachers' media competence: low (conditionally marked as I), medium (II) and high (III).

Considering scientists' conclusions, we developed criteria and qualitative characteristics of future computer science teachers' media competence according to three levels (high, medium, and low). We have developed the characteristics of each level.

K1 – motivational criterion.

- The high level of motivational criterion formation is characterised by future teachers' increased interest in the use of media technologies in teaching computer science lessons, high activity and independence in pedagogical activity, orientation for creativity, predominant analytical activity, the experience of positive emotions while participating in the educational process; predominance of internal motives over the external ones.
- The following features are typical for the medium level: teachers demonstrate an occasional interest in using media technologies in teaching computer science lessons; motives do not correspond to individual possibilities and desires; episodic instructions for creative activity; lack of positive emotions in the process of pedagogical activity.
- The following indicators are typical for the low level: future teachers lack formed intentions; values that do not reflect the objective content of the work are predominant ones; utilitarian motivation to master media technologies prevails; teachers demonstrate vagueness of interests and inclinations.

K2 – cognitive criterion.

- The high level of cognitive criterion is characterised by the following: awareness of basic terms, theories, basic facts of the media education history, creativity of media figures, a clear understanding of the process of mass communication and media

impact in the real world context; compliance of the content of basic professional training with the current state and prospects of subject area development and interaction with the media; design of individual learning trajectories by students [35].

- The following features are characteristic of the medium level: awareness of some basic terms, theories, facts of the media development history, mass communication, media impact, and creativity of individual media figures.
- The following indicators are typical for the low level: lack of awareness (or minimal knowledge in this area) of basic terms, theories, facts of the history of media development, mass communication, media impact, and creativity of media figures.

K3 – action-related criterion.

- Future computer science teachers with a high level of action-related criterion development demonstrate the need to realise their abilities in the educational process; they have a high degree of critical analysis; the purpose and tasks of the classes are characterised by creative approach; such teachers use action-related approach in teaching computer science, the predominance of active teaching methods characterises their teaching; they have practical skills of independent choice, design and distribution of media texts of different types and genres, practice active self-education in the media sphere.
- The future computer science teachers with a medium level of action-related criterion have an unclear need to apply the abilities and acquired knowledge in the educational process; activity in mastering necessary knowledge and skills is not demonstrated enough; such teachers can select and design media texts of different types and genres only with the help of expert consultations.
- Future computer science teachers with a low level of this criterion rarely use any methods to intensify their work; their practical skills of selecting and designing media texts and skills of self-education in the media sphere are not well developed, or they demonstrate unwillingness to develop them.

K4 – interpretative-creative criterion.

- Teachers with a high level of formation of interpretative-creative criterion are characterised by the ability to apply critical thinking technologies, taking into account various factors in the analysis of various media texts and media sources, and the ability to analyse, synthesise and design their own media texts taking into account the aspects of space and time; they can abstract the material, make comparisons and make their critical assessment of the media of any complexity.
- The following features characterise the medium level of the interpretative-creative criterion formation: the ability to apply technologies of critical analysis of the media, taking into account key factors based on the average development of critical thinking.
- The following indicators are characteristic of the low level of formation of the interpretative-creative criterion: tendency to external influence, lack of skills and abilities of critical analysis, and lack of critical thinking skills.

K5 – criterial-evaluative criterion.

- Students – future computer science teachers – with a high level can freely operate their abilities and use them correctly in their professional activities; they are capable of self-assessment and self-criticism; they can correlate requirements with their features, carry out self-diagnostics and are ready for self-development.
- The following indicators characterise students with a medium level of formation of the criterial-evaluative criterion: the average level of orientation in their own abilities and their self-esteem is only sometimes stable but adequate.
- Students – future computer science teachers – with a low level of formation of the criterial-evaluative criterion have a low level of orientation in their abilities; their self-esteem is low; they do not use methods of self-diagnosis; they tend to minimise their capabilities, do not believe in themselves.

Therefore, media competence is a set of motives, abilities, knowledge and skills (indicators: motivational, cognitive, action-related, interpretative-creative, criterial-evaluative) that promotes selection, critical analysis, design, evaluation and dissemination of various media texts and complex processes of media functioning.

Along with the significant positive experience of introducing media education in Ukraine at the current stage, there are also significant problems. First, there needs to be more methodological support for media education in secondary schools. For instance, if there is a curriculum and a textbook for higher education, this issue remains unsolved for secondary school. This problem becomes even more relevant if we consider that the most effective way to develop media skills is to integrate them into existing subjects and courses, which requires adjusting relevant syllabi, teaching aids and methodological materials, and additional teacher training. There are also more general problems in developing modern media education in Ukraine. This is the inertia of the education system, which inherited from the Soviet era the insufficient attention to developing critical thinking, especially while doing the social science courses. At the same time, the first successful steps in introducing media education in Ukraine, as well as the active participation of scientists and representatives of the professional community in this process, give grounds to expect further successful development of media education in our country.

3. Conclusions

This paper has analysed the significance of media education in the modern technology-driven world and its implementation in Ukraine. The key conclusions are:

- Media literacy is an imperative skill in the 21st century for students and teachers alike. It enables critical evaluation of overwhelming media messages and ethical participation in digital spaces.
- Ukraine has recognised the importance of media education, but its integration into school and university curricula needs to be more cohesive and consistent. A comprehensive nationwide strategy is needed.

- Effective media training for future computer science teachers is crucial as they directly deal with information technologies. Their media competence influences how they teach students media literacy.
- Developing motivational, cognitive, interpretative, practical and reflective skills constitutes holistic media education for future computer science teachers. Corresponding criteria should be integrated into pedagogical frameworks.
- Despite positive developments, challenges persist in advancing media literacy in Ukraine, including bureaucratic inertia, insufficient teacher training, lack of funding and updated teaching materials.
- A coordinated effort between government bodies, education specialists and civil society is required to formulate a robust long-term plan to implement media education at all levels in Ukraine systematically.
- Further research into innovative pedagogical models, customised training programs and international collaboration will support this crucial endeavour and help produce media-savvy citizens.
- With continued persistence and commitment, Ukraine can become a leader in providing quality media education, enabling its citizens to thrive in the digital age.

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