

# DEVELOPMENT OF MEDIA COMPETENCY OF STUDENTS OF PEDAGOGICAL UNIVERSITIES IN THE PROCESS OF STUDYING THE COURSE "COMPUTER SCIENCES AND INFORMATION TECHNOLOGIES"

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**Abstract.** The article discusses the methodology for the development of media competency of students of pedagogical higher educational institutions based on the improvement of knowledge and skills in the field of media in the process of studying the course "Computer sciences and information technologies". The content of the course "Computer sciences and information technologies" improved by media knowledge, media competencies and their contents, as well as criteria and levels of development of media competency of students of pedagogical higher educational institutions are offered.

**Keywords:** *media competency, media knowledge, media analysis, media creativity, media technologies.*

## I. INTRODUCTION

The main components of an informatized society are media, language and culture. The language and culture of the information society in which we live is a human media competency. The recommendation of the Parliamentary Assembly of the Council of Europe of Strasbourg (France) notes that the development of software will be an impetus for the development of media competency of youth and adults, in addition, it is considered as an integral factor influencing the media culture of a modern society.

The article focuses on the problem of developing the media competency of future teachers - students of pedagogical higher educational institutions.

This study aims at achieving the following objectives:

- summarize the main directions of development of media competency of students of pedagogical higher educational institutions;
- identify the main components of the development of media competency of students of pedagogical higher educational institutions in the process of studying the course "Computer sciences and information technologies" in the Republic of Uzbekistan;
- summarize the main directions of development of media competence of students of pedagogical higher educational institutions; - identify the main components of the development of media competence of students of pedagogical higher educational institutions in the process of studying the course "Computer Science and Information Technology" in the Republic of Uzbekistan.

## II. LITERATURE REVIEW

In the modern information society, in the context of research on the development of media competency of the younger generation, R. J. Krumsvik [1] notes the growth of youth's dedication to media technologies and the use of the Internet as a new place for the development of a person's personality.

The need for a teacher's media education and increasing his/her media competency in order to form the characteristics of the younger generation necessary for the information society, the worldview of which is largely determined by the modern media environment, is indicated by many academic-teachers, including C.Brown, L. Czerniewicz and T.Noakes [2].

In pedagogical science, the problem of the development of media competence of a teacher was solved from different points of view:

- A.V.Fedorov, I.V.Chelysheva, A.A. Novikova [3] proposed the inclusion of a subject related to media education in the program of pedagogical higher educational institutions;

- T. A. Boronenko, A. V. Kaysina and V. S. Fedotova [4] considered the phenomenon of media competence and media culture of a teacher as one of the characteristics of a "qualification portrait of a teacher" and developed the criteria and indicators to determine its level, which were tested during the experiment at teacher training courses.

M.Ståhl and H. Kaihovirta [5] indicated that four competencies are active while interacting with media: visual competency; technical competency; knowledge of social norms; and knowledge of self.

Findings of the study S.M. Salleh, R. I. Shamshudeen, W. A. W. Abas, and E. Tamam [6] suggest that, from a Malaysian sociocultural perspective, media competence comprises not only understanding about media behaviour (media communication function, biasness, representation, influence, and credibility) but also encompasses moral and legal obligations in media use.

We in our study suggest that if we include in the content of the course "Computer Science and Information

Technologies” the study of media concepts, moral and legal obligations in using the media and issues of the safe use of media, then we can development the media competency of future teaching staff.

The development of media competency of students of pedagogical higher educational institutions in the process of teaching the course “Computer sciences and information technologies” as a pedagogical problem has not been studied.

### III. METHODOLOGY

An experiment on the development of media competency of students of pedagogical higher educational institutions in the process of teaching the course “Computer sciences and information technologies” was conducted with students of three pedagogical higher educational institutions of the Republic of Uzbekistan:

- the Tashkent State Pedagogical University (TSPU),
- the Jizzakh State Pedagogical Institute (JSPI),
- the Kokand State Pedagogical Institute (KSPI).

In view of the fact that in pedagogical higher educational institutions the course “Computer sciences and information technologies” scheduled in the first and second semesters, only 275 first-year students took part in the experiment.

Out of them, there were 140 students in the experimental group, and 135 students in the control group. The number of students of pedagogical higher educational institutions who took part in the experimental and control groups are given in the Table I.

TABLE I. NUMBER OF STUDENTS TOOK PART IN THE EXPERIMENT

Institution	Experimental groups		Control groups	
	Groups	Number of students	Groups	Number of students
TSPU	F 201	20	PP 201	24
	M 201	28	B 201	21
JSPI	M 201	24	F 201	23
	B 201	26	III 201	26
KSPI	M 201	22	F 201	21
	PP 201	20	Ni 201	20
Total:	140		135	

In the experimental group, the classes on the course “Computer sciences and information technologies” were conducted based on the experimental content and methodological recommendations aimed at developing media competency of students, as well as on the method of diagnostic and correction of the formation of students’ media competencies.

In the control group, the classes on the course “Computer sciences and information technologies” were conducted based on the traditional methodology.

The methods as the analysis and synthesis, comparison and generalization were used in the research. In addition, the Student's t-test was used for statistical analysis of the data obtained. The validity and reliability of the obtained data was ensured by the organization of the experiment in accordance with the goals, objectives and conditions of the pedagogical experiment, the representative sample of subjects, the

adequacy of the methodology applied and the statistical processing of the experimental data.

### IV. DISSCUSS AND RESULTS

In pedagogical higher educational institutions for students of all educational fields, the course “Computer sciences and information technologies” is included in the second block of the curriculum (Mathematical and natural sciences). One of the ways to develop the media competency of students of pedagogical higher educational institutions, in our opinion, is to improve the knowledge and skills in the field of media in the process of studying the course “Computer sciences and information technologies”. We have analyzed the content of the course “Computer sciences and information technologies” in pedagogical higher educational institutions, and have proposed to improve its content within hours established by state standards with the topics related to media education (Table II).

TABLE II. IMPROVING THE CONTENT OF THE COURSE “COMPUTER SCIENCES AND INFORMATION TECHNOLOGIES”

Training Module	Module content
Module No. 1. Modern information technologies and their designation	Technologies for creating media texts and working with media information. The concept of media policy and its functions.
Module No. 2. Hardware and software of modern information technologies	Media services, media technologies and electronic educational resources
Module No. 3. Modern programming technologies	Algorithmization and programming of the processes using media information and media technologies.
Module No. 4. Using application software	Search, selection, filtering and use of media information and media technologies.
Module No. 5. Computer networks and their components	Network media safety and the prevention of information threats. Media literacy when using the Internet.
Module No. 6. Information systems and their usage in various fields.	Industry information systems and their use. Media safety, protection against internal and external threats when working with information systems.
Module No. 7. Information and network safety and information protection	Media safety, protection against internal and external threats when working with computer networks.

For each topic, we have developed guidelines for conducting the classes based on modern pedagogical and information technologies (chinquapin, Fan, SWOT analysis, case study, test, cluster on media concepts, educational multimedia resources, etc.). Moreover, in the structure of the teacher’s professional activity, we have identified the main five media competencies (K1-K5) and determined their content (Table III).

TABLE III. MAIN MEDIA COMPETENCIES TEACHER’S PROFESSIONAL ACTIVITY

Activity	Media competency	Media competency content
1. Analysis of regulatory documents in the field of education	K.1. Understands and implements the media policy in education	K.1.1. Knows and able to clarify legal acts in the field of media education. K.1.2. able to name and explain media policy.



2. Development of curricula	K.2. Improves the curriculum with concepts in the field of media	K.2.1. Knows and applies media and concepts related to it. K.2.2. Able to improve curricula with concepts from the field of media education.
3. Organization of the educational process and students' self-education	K.3. Applies media technologies in the organization of the educational process and students' self-education	K.3.1. Able to name media technologies and determine media methods. K.3.2. Able to apply media technology in the educational process and students' self-education.
4. Assessment of knowledge and students' competencies	K.4. Applies modern methods of media competency assessment	K.4.1. Able to indicate exactly which ICTs should be used to effectively assess students' knowledge and competencies. K.4.2. Able to show how to ensure transparency in the process of assessing the students' knowledge.
5. Self-development	K.5. Able to professionally self-develop	K.5.1. Knows and able to name media technologies in the field of their professional sphere. K.5.2. Able to explain how he/she uses media technology in his professional field.

These media competencies formed the basis for the development of students' media competencies at pedagogical higher educational institutions. At the same time, such media competency indicators as media knowledge and their application, media analysis and media creativity were highlighted. In each of them, high, medium and low levels of development are defined (Table IV).

TABLE IV. CRITERIA AND LEVELS OF DEVELOPMENT OF STUDENTS' MEDIA COMPETENCY AT PEDAGOGICAL HIGHER EDUCATIONAL INSTITUTIONS

	Low	Medium	High
Media knowledge and its application	- knows some terms related to media; - has no media literacy; - has no the desire to apply his/her knowledge and skills in the field of media education	- knows the terms related to media; - has the basic aspects of media literacy and media culture; - has some desire to apply knowledge and skills in the field of media education.	- knows the terms related to media; - has a high level of media literacy and media culture; - has a high desire to apply and improve his/her knowledge and skills in the field of media education.
Media analysis	- aware of media threats, does not understand their significance; - not able to analyze media information; - not able to provide with media safety.	not aware of media threats, but does not realize their significance; - able to analyze the media information; - aware of the main methods of media safety.	- aware of media threats and realizes their significance; - able to analyze the media information, media technologies and media threats; - able to use the basic methods of media safety.

Media creativity	- not able to introduce the media related creative ideas in the educational process; - not able to improve his/her own activities based on media technologies; - not media competitive.	- able to introduce the media related creative ideas in the educational process; - able to improve his/her own activities based on media technologies; - not media competitive.	- able to introduce the media related creative ideas in the educational process; - able to improve his/her own activities based on media technologies; - media competitive.
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In their works, the creativity is presented as a creative intellectual ability, including the ability to bring something new to experience, the ability to generate original ideas in the context of resolving and posing the new problems. The need for the development of creativity of teaching staff was noted by Zakirova F. and Pozilova Sh. [7, 8], Ya. A. Tsvetkova [9], L. Yu. Koroleva [10], M. A. Kholodnaya [11], V. M. Y. Cheng [12] and by other researchers.

Based on the definitions of creativity given by these researchers, the media creativity will be understood the creative use of media, the creative approach to developing the media resources, and the creative use of media technologies in professional activity.

According to the recommended practice aimed at the development of students' media competency during the process of study of the course «Computer sciences and information technologies», the pedagogical experiment has been conducted. The obtained results were analyzed using the methods of mathematical statistics.

At the beginning of the pedagogical experiment, the control work (test) was carried out to determine the initial media knowledge and the level of media competencies of first-year students, which showed that the students' media knowledge in the experimental and control group was at the same level (Fig. 1).

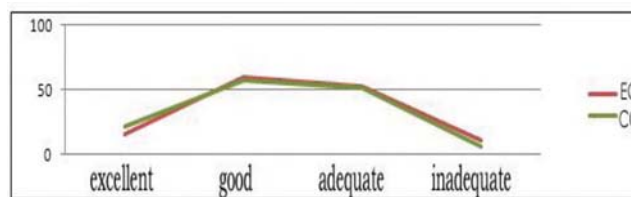


FIGURE 1. Frequencies diagram of the outcomes before the experiment

Summarizing tests to determine the level of media knowledge and their application were used during the first assessment (as a current control), to determine the level of medianalysis and its use were used in the second assessment (as an intermediate control), to determine media creativity were used in the final control in the course "Computer sciences and information technologies". The performance indicators of the experimental results are shown in Fig. 2, which reflects the average state of students' academic performance in experimental and control groups in the context of pedagogical higher educational institutions.

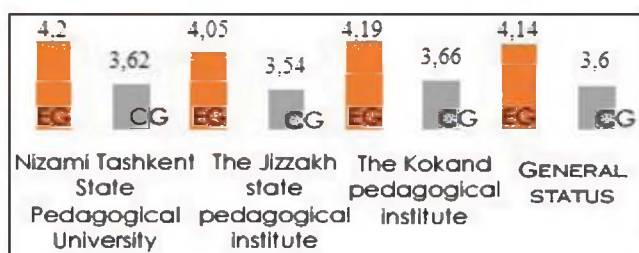


FIGURE II. Average student performance of experimental and control groups in the context of pedagogical higher educational institutions

Effectiveness of the experimental work's results, which was calculated based on the Student's t-test (Table V).

TABLE V. MATHEMATICAL AND STATISTICAL DATA ACCORDING TO THE RESULTS OF EXPERIMENTAL WORK

Statistical data	Experimental group			Control group		
	$\bar{X}$	$\bar{S}$	Reliability gap	$\bar{X}$	$\bar{S}$	Reliability gap
Student's t-test	4.14	0.67	[4.04; 4.25]	3.60	0.71	[3.48; 3.72]

Thus, it can be seen from Table 5 that the development of students' media competency of in the experimental group is 15% higher in comparison to students in the control group.

## V. CONCLUSION

Human development in the modern information media-environment and the growing role of media in the information society actualizes the problem of media education and professional media educational activities. In this regard, society requires teachers with a high level of media competency.

One of the ways to develop the media competency of future teachers - students of pedagogical higher educational institutions - was chosen as a method aimed at improving knowledge and competencies in the field of media in the process of studying the course "Computer sciences and information technologies".

During the study, there was an improvement in the content of the course "Computer sciences and information technologies in pedagogical higher educational institutions based on the inclusion of topics related to media studies, media competence, and media creativity. Moreover, the stages and levels of development of students' media competency of pedagogical higher educational institutions were determined, which included criteria such as media knowledge and their effective application, media analysis and media creativity. Statistical analysis showed that the proposed teaching materials help the development of students' media competency of pedagogical higher educational institutions.

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