Exploring Students' Views on ICT Skills as the Components of Journalists' Professional Competence: EDM Aspect

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Abstract. The article deals with the problem of studying students' views of the instrumental competence of journalists (ICJ) as a predictor of their professional development. The urgency of the issues under consideration is justified by the need to use the Educational Data Mining (EDM) system in higher education institutions, which is caused by the contradictions between the contemporary demands of the journalism labour market and the professional training of graduates. In this regard, the proposed study is aimed at finding possible causes for existing contradictions. Based on the results of the study of educational documents and the review of the scientific literature, authors identified the 23 information computer technologies skills that are required for journalists to perform professional tasks. The students of the first year of study (*N*=207) of three universities were asked to evaluate the importance/necessity of these ICT skills. The used in the survey questionnaire, that consist of demographic and Likert-type questions, provided an opportunity to rank the importance of assessed skills and to identify through factor analysis four significant groups of ICJ-components. They are web publishing skills, cybersecurity skills, multimedia content preparation skills, and media promotion tools. Authors compared the results of the first-year students' survey with the results of the analysis of educational programs in the speciality 061 "Journalism" (of Ukrainian universities) and identified the directions of possible improvement of the organizational component of journalistic education. The conclusions justify the using of illuminated research methodology to develop a system of analysis of educational perception data and propose prospective directions for further research.

Keywords: Journalistic Education, Professional Competence of Journalists, ICT skills, EDM.

1 Introduction

1.1 Problem statement

Some of the changes introduced in Ukrainian higher education institutions, in the particular realization of students' rights on free subjects' choice, require the careful elaboration of decision-making mechanisms, one of the benchmarks of which is objective Educational Data Mining (EDM). The possible inconsistency of higher education institutions' response speed regarding the content-methodological organization of future specialists' professional training in the speed of technology development causes the incompatibility of such training with the employers' requirements to higher education institutions graduates. Thus, according to the results of a pilot study of the state of journalistic education in Ukraine [1], which included a survey of media representatives on the quality of graduate journalists' vocational training, researchers have identified skills which are lack for graduates. Among them, in particular, the ability to find and prepare materials, sources verification, work with social networks, owning the latest formats of information submission [1, p. 45], which indicates the relevance of teaching and learning of information-technological practically oriented disciplines in the process of journalists' professional training. At the same time, the study report found that many universities teach such courses aimed at mastering students' skills of creating a competitive media product in information society environment, such as infographics, search engine optimization for online environments (SEO), blogging, data journalism, multimedia platforms, social media, convergence editing, and online editology: over 5 such courses are in 26% of higher education institutions that participated in the survey, from 3 to 5 courses are in about 53% [1, p. 19-20]. Consequently, according to the analyzed document, there is a contradiction: on the one hand – the presence in the system of journalists' professional training a block of disciplines aimed at acquiring students ICT skills required in professional activity, and on the other – lack of relevant skills in graduates.

1.2 The rationale for the relevance of the study

It can be assumed that such a situation may be conditioned due to the content of educational and professional programs, consisting of a list of general and professional disciplines, and their division into compulsory and optional ones. The block of compulsory disciplines is mainly university studios and theoretical courses. Instead, technology courses related to the use of ICT in the professional activity of media sphere professionals are being taken into blocks of optional disciplines. The students' choice of disciplines from the offered blocks, which must be done during the first years of studying at a higher education institution, influences the further formation of a professional portrait of a future journalist, in particular, determines the instrumental (practically oriented) component of professional competence of students. At the same time, this choice does not always meet journalists' professional needs. It is possible to confirm or refute the assumptions by clarifying first-year students' views about the professional needs of journalists (including the use of ICT in journalistic practice).

Student's views about necessary for professional activity realization knowledge and skills is one of the components of their personal professional theory (PPT), which to some extent defines professional behaviour and influences motivational attitudes towards acquiring new knowledge in the aspect of professional competence formation (by Harmen Schaap [2, p. 11]). Thus, defined views are a determinant for students' choice of disciplines and a predictor of formation on their basis of a certain set of special professional competences. Given this, studying students' views about future profession will help, on the one hand, to take into account their educational needs in the educational process and, on the other, to adjust them according to current labour market needs. Besides, the study of analyzed students' views is related to such typical tasks of EDM, as design and forecasting of graduates' professional competency, analysis and forecasting of students' competitiveness in the labour market, development of educational programs, disciplines and curricula following the obtained information. Therefore, relevant research can be classified as exploratory, aimed at identifying basic procedures and methods for further development of appropriate EDM algorithms for effective decision making.

The purpose of the article is to highlight the results of the analysis of views first-year students' in the speciality 061 "Journalism" about the instrumental competence of journalists (ICJ) as one of educational data components that are predictors of the professional development of higher education applicants.

The following tasks are envisaged for the realization of the purpose: (1) to reveal the content of the concept of "instrumental competence of a journalist" and to identify its components (theoretical analysis) based on studying educational documents and overview of scientific sources; (2) investigate first-year students' views about instrumental competence of a journalist; (3) analyze the results of the study in the aspect of Educational Data Mining theory (EDM).

2 Theoretical analysis

According to the Law of Ukraine "On Higher Education" [3], competence is defined as a dynamic combination of knowledge, skills, and personal qualities necessary for the successful pursuit of professional activity. Separation by authors in the structure of the journalist's professional competence of instrumental is conditioned by (1) division of knowledge into declarative (theoretical, fundamental) and procedural (practical, instrumental) [2, p. 22]; (2) features of the modern media space, an integral part of which are information and communication technologies as the main tools of journalists' professional activity. Accordingly, the instrumental competence of journalists is defined as a set of specialists' procedural knowledge about the availability and purpose of information software, technologies, equipment, Internet tools and services and the ability to use their capabilities in the process of creating and distributing media products following the demands of the labour market.

The analysis of educational documents and scientific works made it possible to find out the need to pay special attention to the development of ICJ in the process of journalists' professional training. Thus, the explanatory note to the Higher Education

Standard of Ukraine of the speciality 061 "Journalism" stated, that multimedia today is "an obvious trend of modern journalism, as well as the sphere of communication in general", and therefore the requirements for ICT skills "apply to all journalism and publishing, as well as other types of social communication" [4, p. 10].

Article [5] states that ICT skills are key in the context of employers' demand, and therefore providing students with the opportunity to gain a thorough ICT experience in the process of obtaining a higher education in journalism is a challenge for educators who need to respond promptly to dynamic changes in the field of profession journalists' activity related to the development of digital technologies [5, p. 64–65].

In article [6], Andreas Veglis and Andreas Pomportis highlight the study results demonstrating the lack of journalists' knowledge in certain ICT areas [6]. According to a survey Journalists at Work [7], conducted by the National Council for the Training of Journalists (UK) in 2018, 64% of surveyed journalists (N=73) said they needed new or additional skills to be fully effective [7, p. 60]. In particular, 46% of respondents include Media Analytics in Social media, 45% – Video editing, 37% – Photoshop-skills, 36% – Data journalism [7, p. 60–61]. This situation, according to J. Pavlik, is because the technology development is rapidly transforming journalism in 4 areas at the same time: (1) how journalists do their work; (2) news content; (3) structure or organization of newsrooms; and (4) relationships between news organizations, journalists and their numerous publications [8]. Thus, the study [7] recorded the testimonies of journalists about changes in the methods and tools of obtaining information [7, p. 7], as well as in the requirements for the qualification and professional skills of specialists – they must be multi-skilled and able to work with a wide range of media platforms [7, p. 8]. Özen Çatal analyzes technological changes in journalistic activity that lead to the profession transformation. Among them, the author identifies technologically driven changes in the workflow; changes in newsgathering practices; acceleration of content production models; convergence of applications for print, broadcast and online application [9]. In connection with the study of how Internet-journalism changes the practice and process of news production by journalists, the author concluded that the inclusion of media literacy and technological skills in the educational programs of journalists is one of the requirements of the present.

Skye Doherty [10], Cindy Royal [11] and others substantiate the advisability of introducing courses in the field of ICT for future journalists to answering the challenges of today. The relevance of this issue is proved by Bob Franklin, analyzing the intellectual rethinking of the theoretical and methodological foundations of journalism in numerous scientific publications devoted to the study of fundamental changes in the academic and scientific field of journalistic practice investigations in the digital age [12].

The scientific publications discuss the skills required for journalists to achieve professional success in today's media environment in the context of its digitalization. Different views on this issue are analyzed, in particular, by Brian Creech and Andrew L. Mendelson [13]. Cindy Royal [11] highlights Debora Halpern Wenger and Lynn C. Owens "Help Wanted" researches, who analyzed the requirements for potential employees in employers' advertisements and found that the third most desirable skills

after previous professional experience and strong writing in the requirements lists were Web/multimedia skills [11, p. 386].

The views of the members of the European Journalism Training Association on this issue are summarized in the Tartu Declaration [14]. This document identifies among the 10 core journalists' competencies the ability to present information in an effective journalistic form that, among other things, covers the following requirements for a journalist training: be able to use different types of story-telling techniques, present content in effective combinations of words, sounds and visuals; be able to make journalistic use of technology [14].

What are the technical skills that applicants for higher education in journalism should gain during their studies? In detail, the ICT skills required for journalists have been identified by Andreas Veglis according to the news production stages, namely Information Acquisition, Information Validation, Information Processing, and Information Presentation and Dissemination [15]. At each of these stages, journalists use appropriate ICT tools, which include software tools, Internet tools and services. The author suggested to group the skills required for this into 5 categories [15]. The first covers basic ICT skills (work with a suite of office applications and the use of basic Internet services). The second category is web publishing skills (basic knowledge of HTML and CSS and the ability to work with content management systems – CMS (WordPress, Drupal, Joomla! etc.)). The third category includes Web 2.0 skills: content creation and distribution through platforms and technologies (social networks, blogs, Wikis, social bookmarking, RSS). The fourth category of ICT skills is webcasting – creating podcasts and streams, and fifth combines the skills of data journalism, which is to process a large body of data and visualize it.

3 Research methodology

The investigation presented in this article is a part of scientific research aimed at studying of changes in the content characteristics of media specialists' professional training in higher education institutions of Ukraine, caused by the rapid development of modern Ukrainian and world media environment. Other parts related to the study of first and fourth-year students' views towards such components of the journalists' professional competence, as, in particular, the specialist's basic knowledge and skills and personal characteristics, will be covered in separate articles, allowing each of the study stages to be thoroughly considered.

3.1 Study objectives

The subject of the offered study was first-year students' views of the skills required to use ICT in journalistic practice. For research based on the study of analyzed sources, as well as the Higher Education Standard of Ukraine of the speciality 061 "Journalism" [4], Passport of the profession "Journalist of multimedia publications" [16], Journalists at Work survey [7], Model curricula for journalism education (2007) [17], and Tartu Declaration (2006, revised in 2013) [14], we selected such components of journalists'

instrumental competence (knowledge/skills related to software mastering, digital resources and technologies for creating and disseminating media content), as: ability to work with social networks; ability to write texts for mobile devices/Internet; knowledge of network security rules; ability to use social media for research; monitoring of online publications, print media and television; knowledge of dashboards, social media functionality; knowledge of Internet content legal regulation; media product promotion; knowledge of mobile journalism features; photo processing skills; ability to edit video; ability to use Photoshop, Illustrator, InDesign software; knowledge of the rules and skills of filming; knowledge of Internet theory and Internet technologies; knowledge of CMS tools (WordPress, Joomla!, etc); design and page making skills of digital media; ability to optimize content to SEO systems; knowledge of Web design basics and skills; ability to visualize data, to create Infographics; digital marketing skills; knowledge of website development tools; ability to use the data analysis software; knowledge of programming languages (HTML, CSS, etc.).

3.2 Participants

207 of first-year students of Institute of Journalism, Taras Shevchenko National University of Kyiv (*N*=97), Private Higher Education Institution "Kyiv University of Culture" (*N*=84), Department of Public Relations and Journalism, Kyiv National University of Culture and Arts (*N*=26) participated in the part of the research covered in the proposed article. All respondents study in the speciality 061 "Journalism". The average age – 17.133 years (SD=0.706). 84% of the respondents are female, 16% – male. About 9% of respondents said they work in the media, with 60% of them having less than 1 year of experience.

3.3 Instrument

The main research toolkit is a questionnaire developed by the authors' team, which contains a block of questions on the personal respondent data (age, gender, place of study, speciality, information on employment and work experience) and assessment block on the proposed scale of importance (necessity) of knowledge/skills/personal characteristics of a journalist in the professional activity (totally 78, including – 23 ICT skills). The assessment block is constructed according to the Rensis Likert method [18] – 4 scales were offered to the respondents: No matter (hardly ever required), Not very important (rarely required), Important (often required), Extremely important (necessary). Scales correspond to 4 assessment levels (three points from low to high), which allowed giving a numerical value to each characteristic – from 0 to 11 points.

3.4 Process

The survey was conducted using the online platform "Socrative" [19] – each participant received an access code to the appropriate questionnaire and completed the questionnaire in real-time using own mobile device. The average questionnaire completion time was 15.38 min.

3.5 Data Analysis

According to the survey results, a matrix of ranks was constructed, for which the average value for the aggregate of respondents' ranks was calculated. Table 1 shows the results of the rating distribution of the journalist's instrumental competence (ICJ) components of the first-year students who participated in the study.

Table 1. Components ranking of ICJ by the first-year students

Rates	ICJ Components
9.34	Ability to work with social networks
9.04	Ability to write texts for mobile devices/Internet
8.25	Knowledge of network security rules
8.21	Ability to use social media for research
8.18	Monitoring of online publications, print media and television
8.08	Knowledge of dashboards, social media functionality
7.99	Knowledge of Internet content legal regulation
7.69	Media product promotion
7.54	Knowledge of mobile journalism features
7.41	Photo processing skills
7.33	Ability to edit video
7.27	Ability to use Photoshop, Illustrator, InDesign software
7.26	Knowledge of the rules and skills of filming
7.26	Knowledge of Internet theory and Internet technologies
7.16	Knowledge of CMS tools WordPress, Joomla!, etc.
7.00	Design and page making skills of digital media
6.83	Ability to optimize content to SEO systems
6.74	Knowledge of Web design basics and skills
6.74	Ability to visualize data, create Infographics
6.66	Digital marketing skills
6.47	Knowledge of website development tools
6.11	Ability to use the data analysis software
4.91	Knowledge of programming languages

The highest rating among all the components of the instrumental competence of a journalist proposed for assessment was given to the "ability to work with social networks". The high appreciation of this component can be explained by the fact that social networks today are the main source of information and the dominant environment of communication, which reaches a multimillion audience and has a number of advantages as a platform for journalism. Among them, in particular, are: the ability to monitor information flows on given topics and organize information; tracking the significance of publications and studying the information requests of the target

audience; prompt feedback; possibility to involve experts; use of tools to promote content and attract and expand the audience, etc.

Thus, the ability to work with social networks according to first-year students is a key skill of a modern professional journalist. To identify the components of instrumental competence that affect this key skill, we performed multiple regression analysis. To do this, the "ability to work with social networks" is taken as a dependent variable (Y), all other characteristics included in the questionnaire – as independent variables (X_n). Step-by-step selection made it possible to exclude from the regression model parameters that do not significantly affect the dependent variable (the results of the analysis are presented in Table 2).

Table 2. The results of regression analysis on the characteristics of "ability to work with social networks"

Model components	Non-standardized odds		Standardized odds	**T**	**P-value**
	B	**SD**	***Beta***		
(Constant)	4.474	0.562		7.967	0.000
Ability to use social media for research (X_1)	0.242	0.057	0.307	4.244	0.000
Knowledge of Internet content legal regulation (X_2)	0.157	0.052	0.207	3.007	0.003
Knowledge of mobile journalism features (X_3)	0.130	0.064	0.164	2.020	0.045
Photo processing skills (X_4)	0.250	0.057	0.331	4.357	0.000
Ability to visualize data, create Infographics (X_5)	-0.178	0.064	-0.214	-2.776	0.006

Thus, the dependence of the ability to work with social networks on other components of instrumental competence is expressed by the formula (1):

$$Y = 4.474 + 0.307(X_1)+0.207(X_2)+ 0.164(X_3)+ 0.331(X_4) – 0.214(X_5) \quad (1)$$

The next stage of the study results was a common factor analysis of the numerical indicators of the respondents' assessment of ICJ components, implemented using the statistical analysis software STATISTICA 6.0 and IBM SPSS Statistics.

The feasibility of performing factor analysis is confirmed by calculating Bartlett's Test of Sphericity, which is 0.0002, and by calculating the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO), which is 0.898.

The using of the Scree test (Cattel criterion) [20] made it possible to determine four significant factors (Fig. 1) with a total variance of the mean distribution of 61%.

The average value of the correlation between the factors is 0.259, and the average value of the internal consistency of the factors is 0.763, which allows us to talk about their stability.

Dominant loadings (≥.500000) were estimated from the four-factor structures by the assessed variables, which made it possible to determine the major and significant components for each factor (classify ICJ components into 4 significant groups for recipients).

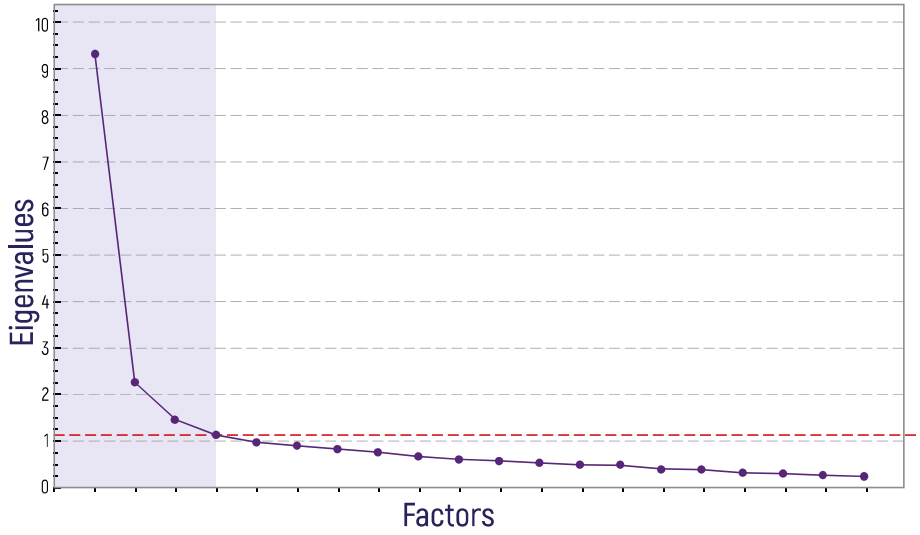

Fig. 1. Determination of factors number by Cattel criterion

4 Main results of the research

The result of the first stage of the study data analysis is a formula derived from the results of multiple regression, which allows us to conclude that in the opinion of recipients, to successfully master the ability to work with social networks enough to master five skills, the most important of which are the ability to use social media for research and photo processing skills (the other three are knowledge of Internet content legal regulation, knowledge of the features of mobile journalism and the ability to visualize data and create Infographics).

The result of the second stage of the data analysis is the distinguishing of 4 groups of ICJ components, summarized by the authors of the article under conditional names, which can be discussed. The first single factor (the group of ICJ components) that accounts the largest share of the total variance (20.47%) with the eigenvalue 4.709 is "Web Publishing Skills" includes the following components (listed in order of decreasing factor loadings): knowledge of programming languages (factor loading is 0.864); knowledge of website development tools (0.807); knowledge of CMS tools (0.735); knowledge of data analysis software (0.678); knowledge of Photoshop, Illustrator, InDesign software (0.617); ability to visualize data, create infographics (0.598); design and page making skills of digital media (0.559); ability to optimize content to SEO systems (0.538); knowledge of Web design basics and skills (0.511).

The second most important factor (eigenvalue 3.914, the share of total variance 17.01%) is "Cybersecurity Skills" covers the skills of monitoring online publications, print media and television (0.800); knowledge of network security rules (0.747); knowledge of Internet content legal regulation; (0.620); knowledge of Internet theory and Internet technologies (0.608); media product promotion (0.553); knowledge of the

mobile journalism features (0.533); ability to work with social networks (0.528); ability to use social media for research (0.526).

The third factor (characterized by an eigenvalue 3.728, a share of the total variance 16.21%) is "Multimedia content preparation skills": the ability to edit video (0.907); photo processing skills (0.827); knowledge of the rules and skills of filming (0.775); knowledge of Web design basics and skills (0.568); design and page making skills of digital media (0.508).

The fourth factor (the least significant – the eigenvalue is 1.676, the share of the total variance 7.28%) is "Knowledge of media product promotion tools": knowledge of dashboards, social media functionality (0.635); digital marketing skills (0.547).

Table 3. Comparison of ICT components of journalists' professional training with respondents' views of professional instrumental competence

ICJ Components Groups (Respondents' Views)	Compulsory Disciplines	Optional Disciplines (selected by respondents in 2019)	Optional Disciplines (full list)
Web publishing skills	New Media Cross-media Journalism Web-design in the media	SEO copywriting	SEO-copywriting Website support Content management systems Multimedia news portal Creating and promoting a new site Effective presentation tools
Cyber-security skills	-	-	-
Multimedia content preparation skills	Television production Photojournalism Internet media content	Advertising design workshop Mediadesign	Advertising design workshop Mediadesign Fact-checking and verification Storyboards in multimedia projects Visual statistics Modern cross-media communications Advertising and PR on the Internet
Knowledge of media promotion tools	Mediametry	-	Television Marketing Media Marketing Internet media analytics

Consequently, according to the results of the first-year student survey, four significant groups of ICJ components were identified (listed in descending order of importance): web-publishing skills; cyber-security skills, multimedia content preparation skills and knowledge of media promotion tools.

The analysis of the educational-vocational programs' components, which the students (who took part in the survey) study, made it possible to test the hypothesis about the dependence of the subjects' choice on the respondents' views about the ICT skills required in journalism practice. For this purpose, from the whole set of disciplines, based on the study of available annotations, those, aimed at the ICJ formation were selected. The results are summarized in Table 3.

It should be noted that the list of compulsory disciplines in different universities is predominantly established, at the same time the blocks of optional disciplines differ depending on the specifics of the educational institution and the specializations offered in it (according to item 5 of Article 10 of the Law "On Higher Education of Ukraine" higher education institution within the licensed speciality may introduce specializations, the list of which is determined by the higher education institution [3]). Analyzing Table 3, we can observe trends in students' choice of disciplines that are not duplicated in content with the compulsory disciplines and complement them according to respondents' views about ICJ. At the same time, no specific disciplines have been identified for the development of the second-largest group of ICJ components (cyber-security skills). It may be assumed that the information required to form the skills of this group is part of other disciplines.

5 Conclusions, discussions and prospects of further researches

Our research has made it possible to draw the following main conclusions.

The use of ICT in the professional training of journalists is due not only to the methodological features of the educational process organization but also to the demands of the labour market for the journalists' professional competence. According to the world scientific opinion, instrumental competence knowledge is one of the basic requirements for the professional training of higher education institutions graduates in the speciality 061 "Journalism". Its components include knowledge of software, technology and special equipment, Internet tools and services required at every stage of journalists' professional activity realization (from design to creating and distributing media products) and the ability to use their capabilities following professional tasks. Disputable remains the question of the need for journalists' knowledge of programming languages: some researchers believe that knowledge of basic coding principles are sufficient for productive collaboration with programmers, while others believe that mastering journalists' coding language is necessary. In support of this view, C. Royal cites the example of advertisements by some employers, whose inquiries state that a candidate applying for a journalist position must know modern programming languages [11, p. 386]. According to Dan Gillmor, journalists need to understand the basic principles of programming in a reality where "computer code is more often part of everything we touch and the services we use" [21, p. 816]. In this regard, the author believes that in the course of professional training students should take at least a short JavaScript course or gain basic knowledge to work with programmers [21, p. 816]. An analysis of educational programs in the speciality 061 "Journalism" in Ukrainian

universities revealed that most disciplines aimed at mastering analyzed ICT skills, which are components of journalists' instrumental competence, are mostly grouped into specialized courses, often grouped into one of the sample blocks. This means, that if all such disciplines were selected (which is impossible given certain limitations), their total amount would be no more than 25% of ECTS credits. In this aspect, it is necessary to draw attention to the Paris Declaration of Freedom of Journalism Education (2019) concluded by the World Journalism Education Council, one of the points of which is the recognition of the need to maintain a balance between academic knowledge and technical skills of journalistic craft [22]. Second, such a principle of composing academic disciplines makes it difficult for students to choose from the list of disciplines, those, that most closely meet the contemporary professional needs of journalists. Such an opinion can be explained on the example of the study of first-year students' views about the ICJ components. Thus, the results of this study are ICT skills rating, compiled by the average values of the survey results, and groups of ICT skills, that are separated by factor analysis of the survey numerical results. A comparison of these results showed that some of the evaluated variables are of different significance. For example, the "knowledge of programming languages" in the overall ICT skills rankings comes in at 4.91, which is "not very important (rarely required)". At the same time, the same variable ("knowledge of programming languages") has the highest factor loading in the most meaningful factor structure defined by the authors as "Web publishing skills" and is logically combined with other components of this factor. Another example is the variable "ability to write texts for mobile devices/Internet", which is ranked the second with a score of 9.04 in the overall ranking, but in none of the four distinguished factor structures (ICT skills groups) by factor analysis results not hit without having a sufficient factor loading. Such result is quite logical since the ability to write texts relates to the fundamental skills of journalists (is a part of the ability to write texts for different types of media) and applies only indirectly to ICT.

The examples below indicate the difficulty of ranking the offered variables, filed with the solid list: some of them may be equivalent, however, the respondents' awareness of this is complicated by the fact that they are assigned to one group, which, in connection with the principle of the formation of optional disciplines, may mean the need for review (perfection) mechanism for grouping both the disciplines themselves and their blocks.

The results of regression analysis of the survey data allow teachers to analyze the learning needs of students who participated in the survey; their idea of the skills most necessary for professional activity; to determine which ones they prefer and which ones are out of their sight. This information will help to monitor whether local and global training goals have been achieved, to optimize the methodology of professional training of journalists, in particular in the organization of such pedagogical activities that will help (if necessary) adjust students' perceptions of necessary professional skills.

The consideration of factor analysis results makes it possible to conclude that students' ideas of the ICJ components are consistent with contemporary scientific thought. For example, the identified factor structures correspond to the main ICT skills groups that are highlighted in the Model curricula for journalism education [17], summarized by the World Journalism Education Council, and correlated with the

specific competencies defined in the Higher Education Standard in journalism [4]. At the same time, the received factor structures are an indicator of students' educational needs and expectations, information about which can be used to 1. Analyze the adequacy of students' views of the profession and, if necessary, adjust them; 2. Predicting students' professional development; 3. Improving the content and methods of teaching educational disciplines. In this regard, the methodology of analyzed research can be used to develop one of the components of an educational data analysis system and can be used regularly because the results of the study characterize a particular sample of 2019–2020 first-year students. Students who will enter the speciality 061 "Journalism" in the next and subsequent years are likely to have different ideas because they are in a different information space (which changes according to significant socio-political conditions and scientific and technological development). Thereby, the data that characterizes a specific sample of students will enable teachers to respond promptly to the educational needs of future journalist professionals.

Therefore, such promising areas for further research can be identified: development of an automated system of perception data analysis in the field of journalism education to track the dynamics of students' professional development based on their views about the various components of journalists' professional competence; a comparison of the study results to identify relevant views of students, teachers and potential employers to synchronize them in the aspect of improving journalism education.

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