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IMPRESSUM

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International Journal of Cognitive Research in Science, Engineering and Education

(IJCRSEE)

EDITORIAL

International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE) is an open access international peer-reviewed, open-access journal, which provides a platform for highlighting and discussing various cognitive science issues dealing with the problems of cognition (and its evolution) within some specific subject field - philosophical, psychological, linguistic, mathematical, psychogenetic, pedagogical, ergonomic. Editorial Board strives to provide a possibility for the scientists of different fields to publish the results of their research, technical and theoretical studies. IJCRSEE is multidisciplinary in approach, and will publish a great range of papers: reports of qualitative case studies, quantitative experiments and surveys, mixed method studies, action researches, meta-analyses, discussions of conceptual and methodological issues, etc. IJCRSEE publisher is The Association for the Development of Science, Engineering and Education, Vranje.

IJCRSEE particularly welcomes articles on the results of scientific research in various fields of cognitive science (psychology, artificial intelligence, linguistics, philosophy and neuroscience) catering for international and multidisciplinary audience. Readers include those in cognitive psychology, special education, education, adult education, educational psychology, school psychology, speech and language, and public policy.IJCRSEE has regular sections: Original Research, Review Articles, Studies and articles, Book Reviews, Case Studies, and is published three times a year. This journal provides an immediate open access to its contents, which makes research results available to the public based on the global exchange of knowledge. The journal also offers access to uncorrected and corrected proofs of articles before they are published.

The main aim of the Journal is to discuss global prospects and innovations concerning major issues of cognitive science, to publish new scientific results of cognitive science research, including the studies of cognitive processes, emotions, perception, memory, thinking, problem solving, planning, education and teaching, language and consciousness study, the results of studying man's cognitive development and the formation of basic cognitive skills in everyday life. The Journal seeks to stimulate the initiation of new research and ideas in cognitive science for the purpose of integration and interaction of international specialists in the development of cognitive science as interdisciplinary knowledge.

All articles are published in English and undergo a peer-review process.

The scope of IJCRSEE is focused on cognitive research both in topics covered as well as disciplinary perspective:

- Cognitive Research in Education
- Cognitive Pedagogics
- Cognitive Psychology
- Psycholinguistics
- Cognitive Linguistics
- Cognitive Culture Studies
- Cognitive Neurophysiology
- Cognitive Aspects: Sport Culture
- Cognitive Aspects: Methodology of Knowledge
- Text Processing and Cognitive Technologies
- Curriculum Development
- Development of Learning Environment
- Education Administration

- Educational Psychology
- Educational Technology
- Elementary Education
- Innovative Pedagogical Models
- Learning Systems Platforms
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Teaching and Learning TechnologiesIJCRSEE has an international editorial board of eminent experts in their field from Russia, USA, Republic of Macedonia, Germany, Hong Kong, Greece, Serbia, Australia, United Kingdom, USA, Turkey, Nigeria, Bulgaria, Romania, Spain, Italy, Republic of Srpska, Croatia, Kingdom of Saudi Arabia (KSA), India, China, Thailand, Israel, Malaysia, Morocco, Jordan,, Iran... We are confident that IJCRSEE will attract a great number of editors, eminent scientists in the field. The selection will be based on the activities of the editors and their desire to contribute to the development of the journal.

IJCRSEE provides a platform for academics and scientists professionals to refer and discuss recent progress in the fields of their interests. Authors are encouraged to contribute articles which are not published or not under review in any other journal.

Each submitted manuscript is evaluated on the following basis: the originality of its contribution to the field of scholarly publishing, the soundness of its theory and methodology, the coherence of its analysis, its availability to readers (grammar and style). Normal turn-around time for the evaluation of manuscripts is one to two months from the date of receipt.

Submission of an original manuscript to the journal will be taken to mean that it represents original work not previously published, that is not being considered elsewhere for publication; that the author is willing to assign the copyright to the journal as per a contract that will be sent to the author just prior to the publication and, if accepted, it will be published in print and online and it will not be published elsewhere in the same form, for commercial purposes, in any language, without the consent of the publisher.

The names and email addresses entered in this journal site will be used exclusively for the stated purposes of this journal and will not be made available for any other purpose or to any other party.

The requirement for the submission of a paper implies that it has not been published before; that it is not under consideration for publication anywhere else; that its publication has been approved by all co-authors.

When considering submitting an article, the Editors have provided the following criteria to assist authors with preparing their submissions:

Originality – The author should ensure that the manuscript has not been previously published nor is being considered by another journal.

Plagiarism - Content should be properly referenced. Be sure to check the paper for possible accidental plagiarism. Some plagiarism checker websites include: http://www.ithenticate.com/, www.antiplagiat.ru, www.grammarly.com, www.plagtracker.com or www.duplichecker.com

Writing – Please write in good English (American or British usage is accepted, but not a mixture of these). For non-native English speakers, and perhaps even for some native English speakers, grammar, spelling, usage, and punctuation of the texts are very important for an effective presentation. Hence, manuscripts are expected to be written in a clear, cogent, and readily understandable by an international readership.

Manuscripts must be submitted online. Electronic submission reduces the editorial processing and reviewing time. As part of the submission process, authors are required to check off their submission compliance with all of the following items, and submissions may be returned to authors who do not adhere to the following guidelines:

The submission has not been previously published or presented to another journal for consideration (or an explanation has been provided in Comments to the Editor).

The submission file is in OpenOffice, Microsoft Word, RTF, or WordPerfect document file format.

Where available, URLs for the references have been provided.

The text is single-spaced; uses a 12-point font; employs italics, rather than underlining (except with URL addresses); and all illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end.

The text adheres to the stylistic and bibliographic requirements outlined in the Author Guidelines.

If submitting to a peer-reviewed section of the journal, the instructions in Ensuring a Blind Review have been followed.

A manuscript goes through the peer review process. Authors submit manuscripts to Editorial office

via the online system. The acknowledgement letter should be sent to the author to confirm the receipt of the manuscript. The Chief Editor first reviews manuscripts. Chief Editor is assisted by Section Editors (could also be Co- or Associated Editors). The Editor assigns a Section Editor to see the manuscript through the complete review process and return it with a recommendation or decision. The manuscript is checked to see if it meets the scope of the Journal and its formal requirements. If it is incorrect or unsuitable, the author should be informed and the manuscript filed (or returned if requested) – direct rejection. Manuscripts that are not suitable for publication in the Journal are rejected. A Rejection letter is sent to the author stating the reason for rejection. If the manuscript conforms to the aims and scope of the Journal, and formally abides by the Instructions to Authors it is sent out for review. Depending on the type of paper, it could be accepted immediately for publication (invited Editorial, Book review etc) by the Chief Editor.

Check that the manuscript has been written and styled in accordance with the Journal style; that it carries an abstract (if applicable), keywords, correct reference system etc. and check that the correct blinding system has been used. If anything is missing ask the author to complete it before the manuscript is sent out for review.

The manuscript is sent out for review. The reviewer reads and evaluates the manuscript and eventually sends a review report to the Chief Editor. The time for review can be set to 2-6 weeks depending on the discipline (more time is usually given to papers in the humanities and social sciences). Make sure to provide the reviewer with clear instructions for the work, e.g. outlined in the form of a Review report or a number of questions to be considered.

Based on the reviewers' comments the Chief Editor makes a decision to:

- Accept the manuscript without further revision
- Accept after revision
- Ask authors to resubmit
- Reject

An acceptance letter is sent to the author and the final manuscript is forwarded to production. Sometimes, the authors are requested to revise in accordance with reviewers' comments and submit the updated version or their manuscript to the Chief Editor. The time for review can be set to 2-8 weeks depending on the discipline and type of additional data, information or argument required. The authors are requested to make substantial revisions to their manuscripts and resubmit for a new evaluation. A rejection letter is sent to the author and the manuscript is archived. Reviewers might be informed about the decision.

After review a manuscript goes to the Copy Editor who will correct the manuscript concerning the correct referencing system, confirmation with the journal style and layout. When Copy Editor finishes his/her work they send manuscripts to the Layout editor.

Layout Editor is responsible for structuring the original manuscript, including figures and tables, into an article, activating necessary links and preparing the manuscript in the various formats, in our case PDF and HTML format. When Layout Editor finishes his/her job they send manuscripts to Proof Editor.

Proof Editor confirms that the manuscript has gone through all the stages and can be published.

This issue has 11 articles (8 original research and 3 review articles). Our future plan is to increase the number of quality research papers from all fields of science, engineering and education. The editors seek to publish articles from a wide variety of academic disciplines and substantive fields; they are looking forward to substantial improvement of educational processes and outcomes.

Editor in Chief
Assist. prof. Dr. Lazar Stošić, Research Associate

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Cognitive and Metacognitive Aspects of the Development of Lifelong Learning Competencies in Law Students

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Abstract: Lifelong learning is one of the main trends in educational and social policy in Europe, aimed at ensuring professional realization and social integrity of an individual. The article describes cognitive and metacognitive aspects of the formation of learning competence, as well as predisposition of law students to lifelong learning. A survey of 218 students and masters was conducted, data on the most popular and effective forms of knowledge acquisition (experience of formal, nonformal and informal learning over the past year), plans for further education and career development were collected. The dynamics of learning at different years of study is described. A group of students with pronounced learning and focus on lifelong learning (45% of the sample) was identified. A comparative analysis of two samples was carried out and qualities that could be considered markers of the LLL orientation were identified: a high level of metacognitive knowledge and metacognitive activity, reflective competence (at the cognitive, metacognitive and personal level), internal involvement in learning, focus on achieving professionalism and personal development, general self-efficacy, the prevalence of progressive and creative motives over consumer ones. Conclusions are drawn about the predominant role of metacognitions and personality determinants in the formation of lifelong learning competency among students. Reflection aimed at recognizing one's own cognitive processes and understanding their contribution to personal development is the main mechanism for the formation of meta-cognitive abilities. The results obtained in the study determine the ways of pedagogical support and psychological intervention to ensure the development of lifelong learning competencies in different categories of students.

Keywords: lifelong learning, educational competence, cognitive abilities, metacognitive competencies, reflection, individual's self-development.

Introduction

Lifelong learning (hereinafter – "LLL") is one of the main trends in modern educational, social and international politics. The concept of lifelong learning was introduced back in the 70's of the XX century under the auspices of UNESCO as the most effective way to solve the problems of professional mobility and the integration of some socially vulnerable groups: elderly people, forced and voluntary migrants, etc. (Lengrand, 1970; Faure et al., 1972). The past decades have confirmed the validity of this model (OECD, 2006). Numerous scientific studies by European scholars have clarified that formal and nonformal learning positively affects economic performance, social capital, psychological well-being, health, family relationships, and other areas of life (Delors, 1996; Schuller et al., 2004; Hammond and Feinstein, 2006; Aspin et al., 2012; Bogavac, D. and Đukić, T. M., 2017; Popovic et al., 2019; Boceliuk, 2020 and others). The global challenges of a post-industrial society (technological innovation, digitalization, information overload, demographic shifts, regular economic and social crises) put LLL among the necessary conditions for the existence of any person, regardless of age or profession.

In 2000, significant Memorandum on Lifelong Learning was adopted, which finally approved the entry of European society into the era of knowledge. Obviously, a successful transition to a knowledge-based economy and society must be accompanied by a transition to lifelong learning and in the full diversity of learning contexts. LLL is defined as "all purposeful learning activity, taken on an ongoing basis with the

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aim of improving knowledge, skills and competence" and is proclaimed a leading principle of education (Commission of The European Communities, 2000). The importance of the LLL concept for the state and society is determined by two main goals: first, this is the solution to the problem of unemployment, increasing economic potential by expanding employment opportunities and free entrepreneurship; second, it is a struggle against social exclusion and the formation of civic engagement in a joint activity and various social ties, involvement, desire and ability to "take life in one's own hands". The importance of LLL for an individual consists in personal self-realization: satisfying important cognitive and spiritual needs, developing abilities, improving the quality of life.

The 21st century has fundamentally changed the traditional models of learning, communication and work – and they continue to change every day. The new era is called VUKA-world (volatility, uncertainty, complexity, ambiguity), it is a world that cannot be predicted (Mack et al., 2016). Under such conditions, the role of LLL in ensuring the ability of a person to quickly and effectively respond to inevitable changes in external conditions is growing. Such a path should begin with a high level of basic education and access to new competencies at any age. These goals are declared by the United Nations (2015) as the main guidelines for the sustainable development of man-kind until 2030.

In 2006, the European Commission launched the process of regularly reviewing the key competencies of The European Reference Framework of Key Competences for Lifelong, a regularly updated list of recommendations on investment in education that will help students gain the necessary knowledge and skills in the modern competitive world. In addition to knowledge and skills, an important educational product is proclaimed an attitude – a set of values, thoughts and beliefs; "disposition and mindsets to act/react to ideas, persons or situations" (European Commission, 2018). The list contains eight equally important competencies, which together constitute the key to empowerment: communication in the mother tongue and foreign languages; mathematical competence and basic competences in science and technology; digital competence; learning to learn; social and civic competences; sense of initiative and entrepreneurship; cultural awareness and expression (European Parliament and Council of the European Union, 2006). In addition to this list, the so-called "transversal skills" are important reference points – the qualities necessary for success regardless of cognitive abilities and professional skills: problem solving, risk assessment, initiative, decisiontaking, constructive management of feelings, critical thinking, creativity (Siarova, Sternadel and Mašidlauskaitė, 2017). The latest edition of the Reference Framework proclaims the need to find new ways of learning in a society that is becoming increasingly mobile, ensuring the right mix of "hard" and "soft" skills (European Commission, 2018).

Among the "soft skills", the learning to learn competency seems to be especially important – it is a transversal element that provides all other competencies. Its significance is justified by the following forecast: "Most children entering primary school today will end up working in completely new job types that do not yet exist, and half of today's work activities could be automated by 2055" (European Commission, 2018). The Reference Framework defines the learning to learn competency as to pursue and persist in learning, to organize one's own learning both individually and in groups. This competence includes effective management of time and information, awareness of one's learning needs, identifying available opportunities, as well as sufficient positive motivation and confidence to overcome obstacles for successful learning. The cognitive aspect of academic competence means the acquisition, processing, assimilation and application of new knowledge and skills based on previous experience, as well as seeking and making use of guidance (European Parliament and Council of the European Union, 2006). In terms of psychological terminology, all these aspects can be defined as metacognition – knowledge of one's own thinking processes and strategies, the ability to consciously reflect them, and to carry out actions based on this knowledge (Flavell, 1979).

Although the LLL model is more often associated with adult education, we consider it important to study younger groups, in the periods of formation of the foundations of cognitive and metacognitive competencies. The stage of learning at the university is especially important when a person moves from externally regulated cognitive activity to independent and self-regulated learning. At this time, the person's LLL orientation is fully manifested for the first time – internal orientation and behavioural activity aimed at maximizing the use of opportunities to improve one's knowledge, skills and competencies in a particular life situation in view of personal, social and professional prospects.

In recent years, the understanding of learning competence has been less and less focused on the self-organization of learning and career, and is included in the wide context of personal development (awareness, understanding of the self, taking care of one-self, self-management, independence, drive, sense of initiative and social interrelations (communication, cooperation and teamwork, negotiation, conflict resolution, respect and responsibility, empathy and inclusion). In addition to those already mentioned, the new approach includes some new tasks as resilience, ability to deal with uncertainty persistence and

complexity (European Commission, 2018).

National education systems quickly reoriented their goals and standards in the context of the LLL concept. First of all, there was a shift from a socially-oriented model of qualifications to a personality-oriented model of competencies (Raven, 2002; Barros, 2012). Today, the priority is not the assimilation of a ready-made set of knowledge and skills by students, but the formation of learning competence, that is, the ability to independently determine their need for knowledge, obtain and assimilate the necessary information, and apply it in different life situations. The leading role in cognition belongs not to the state or educational institution, but to the individual himself. It is important to understand that no knowledge in the modern world is stable or final. Any person needs to be ready to change their existing ideas and habitual methods of action, to finish their studies along the way. The offer of educational services of various formats and quality has grown significantly, which requires critical reflection.

In this context, the experience of Ukrainian experts in the field of law is particularly interesting, since it is gained in unique conditions (which can be called the standard of the VUCA world). The fact is that the legal framework in Ukraine is extremely dynamic and unpredictable. Over the past 30 years, three revolutions have occurred and regimes have changed dramatically. Reforms of all spheres of life are continuous, although they are not very streamlined and effective. In 2019, the new government proclaimed the socalled "turbo-regime" of work in the country's main legislative body and the next accelerated reforms in many social and economic spheres. Legal experts are the first to respond to a change in the "rules of the game": the introduction of new regulations and their implementation in existing laws. They are forced to quickly adapt to turbulent, often contradictory, innovations, ensuring the efficient operation of state authorities, individuals and legal entities, resolving conflicts in accordance with the law, monitoring compliance with obligations and ensuring the rights and freedoms of the whole society.

The objective of this study is to identify cognitive and metacognitive aspects of the development of educational competencies, as well as LLL orientation (predisposition of law students to lifelong learning).

This work will allow moving on to more general patterns of the development of learning competencies of students in the context of the LLL model. It can serve as a scientific, theoretical and methodological justification for the activities of corporations, public organizations, private and public educational institutions to ensure affordable adult education.

Materials and methods

Sample description

The empirical study involved 218 volunteers – students of 2nd-4th years of study and master's programs (5th-6th years of study) in the specialties "Law" and "Judicial Proceedings" of several Ukraine universities (Odesa State University of Internal Affairs, Kyiv University of Law of the National Academy of Sciences of Ukraine and Dnipro State University of Internal Affairs). The age of respondents is 18-36 years (average age 21.4); balanced distribution by gender (46.3% of women, 53.7% of men). Most students (68.1%) study for fee, which gives us reason to assume a conscious choice of profession and interest in further practical application of the knowledge and skills. 35.2% of respondents combine studies with work.

Data collection methodology

The study was held in 2018-2020. Despite the scientific urgency and practical relevance of the topic, there are still no reliable diagnostic methods for diagnosing LLL competencies. Some authors rely on data from questionnaires on the study of "readiness for self-education and self-development," but the psychometric qualities of such tools are questionable.

Therefore, the main criterion in our study was life dates - real events in the lives of students that confirm their readiness for LLL (collection of biographical information). We asked students to recall and describe their studies over the past year in the most detailed way possible. During the year, students go through a full educational cycle, which includes two academic semesters and several vacation periods. On the one hand, the individual characteristics of educational activities are fully manifested during this period, even taking into account different life situations. On the other hand, this is a period that the student remembers well and with respect to which reliable information can be obtained. The experience of obtaining knowledge in three categories according to Eurostat (2016) was recorded – formal education, nonformal education, informal education. The respondents assessed how much the experience gained

was useful in their life (professional development, social interaction, self-knowledge, self-development, etc.). Students completed the form shown in Table 1.

Table 1
Questionnaire form on individual experience of LLL

Form of study *Where did you study?*	Subject of study *What did you study?*	Studying time and regularity *How long did you study?*	Assessment of your experience *How useful was it?*
1. Formal education related to obtaining a certain educational level, a generally recognized diploma or certificate in a specialty:			
2. Nonformal education (occurs in parallel with your main education and does not result in obtaining an officially recognized document: training courses, seminars, master classes, circles, trainings, individual lessons with a tutor, etc.):			
3. Self-study without the participation of teachers (initiated by you, your social environment or occurs spontaneously).			
4. Please indicate your plans for further education, if any:			

Real experience of activity in the three main forms of education, information on the applicability (usefulness) of the knowledge and skills gained, as well as on the plans for further self-education of respondents, allow us to interpret the data as a measure of LLL orientation and study the specifics of this phenomenon in the years of studentship.

The results of a biographical survey are presented in the form of phenomenological descriptions; Frequencies of popular response categories were also calculated. An analysis of the real experience of educational activity allowed identifying and concretizing the criteria for LLL orientation of student. On this basis, the sample was divided into two groups:

- LLL-oriented students with diverse, regular and useful experience of formal, informal, independent study (six or more cases over the past year), which is accompanied by developed educational prospects – 98 people;
- Ordinary students who do not demonstrate pronounced activity in obtaining knowledge and do not have plans for further education, in addition to formal education at the university in the chosen specialty – 120 people.

As for the selected groups, a comparative analysis was conducted on a number of quantitative indicators (age, academic performance, data from standardized diagnostic tests and questionnaires):

1. To determine the cognitive aspects of the development of the LLL competency, we collected data on the academic success of students – average rating score for the last two semesters.

2. General intelligence was measured using Raven's Progressive Matrices – a classic test that allows measuring the "g" factor using non-verbal tasks of increasing complexity (determining the relationship between abstract figures). The test was carried out in group form with a time limit of 20 minutes, the total number of correct answers was recorded (Mukhordova and Shreiber, 2011; Raven, Raven and Kurt, 1997).

3. The questionnaire for self-assessment of metacognitive knowledge and metacognitive activity was developed by Skvortsova (2005) and Kashapov (2012) in line with the concept of metacognition of Flavell (1979). The methodology allows one to evaluate both the main components of metacognition: metacognitive knowledge and metacognitive activity, as well as a number of additional characteristics: concentration, acquisition of information, choice of main ideas, time management (Kashapov, 2012).

4. The methodology "Reflexive skills" by Savchenko (2016) presents a competency-based approach to reflection as "a phenomenon that is formed and developed in the system of reflexive experience, providing the realization of reflexivity as a general ability of the individual and determining the level of his/her competence in various activities through awareness and reorganization of personal experience". Three sets of questions allow evaluating the level of development of reflective competence at different levels: cognitive, metacognitive and personal reflective skills. The total indicator of three subtests reflects the general level of development of students' reflexive experience.

5. The questionnaire of implicit theories is a modification of Dweck's methods made by Kornilova et al., (2008). It allows diagnosing students' everyday ideas about the possibilities of developing intelligence and personal growth in the learning process. In addition to the three K. Dweck's scales reflecting implicit ideas about intelligence, personality and learning objectives, the developers added the Self-assessment of Learning scale as a predictor of students' academic performance (Kornilova et al., 2008).

Some generally recognized psychological factors that determine the learning activity of students and can affect the formation of cognitive competences of LLL at this stage of life were also diagnosed.

6. The methodology for diagnosing the motivational structure of an individual of Milman, V. E. (2005), developed in line with the humanistic theory of needs of Maslow, allows identifying and evaluating seven types of personality orientation, located in the continuum from consumer, regressive to productive, progressive dispositions.

7. The scale of general self-efficacy of Ralf and Matthias (Schwarzer, Erusalem and Romek, 1996), allows evaluating a person's conviction in the effectiveness of his/her own actions as a stable personal characteristic.

All diagnostic tools have confirmed validity and reliability, are standardized on representative samples. They are published in open sources and recommended for use for scientific purposes.

The statistical package SPSS for Windows (version 16.0) was used when processing the data. Normality of data distribution was verified using the Kolmogorov-Smirnov Test. Since the distribution of some parameters differed from normal, we used the nonparametric method – the Mann-Whitney U-Test – for comparative analysis. Qualities in which the most striking differences between the groups were manifested can be considered prerequisites and markers of the LLL orientation.

Results

General analysis of student learning activity

On average, the respondents indicated 5-8 specific forms and methods of training that took place in their life during the year (the maximum value in the sample is 15, the median value is 6). The survey results give us a general idea of the forms and methods of obtaining knowledge that students use at different stages of their study – Table 2.

Table 2

Individual experience of LLL in law students, %

Categories and answers:		2nd year N=67	3rd year N=60	4th year N=63	5th-6th year N=28
1. Formal education:	first higher education	98.51	98.33	96.83	82,14
	second higher education	1.49	1.67	3.17	17,86
	parallel study for another specialty at the university	-	3.33	4.76	7,14
	certified training courses	2.99	3.33	6.34	10,71
	certified online courses	4.45	8.33	11.11	3,57
2. Nonformal education:	webinars	58.21	73.33	63.49	71,43
	master classes	2.99	6.67	15.87	35,71
	open lectures	59.70	65.00	23.81	17,86
	corporate trainings, seminars	-	3.33	9.52	21,43
	individual sessions	5.97	6.67	6.34	7,14
3. Self-study:	search for necessary information on Internet resources	89.55	91.67	85.71	89,29
	viewing video materials	74.63	71.67	64.66	64,28
	studying books by specialty	53.73	63.33	61.90	82,14
	study of relevant information in professional journals	14.93	25.00	26.98	53,57
	professional practice in parallel with study	-	6.67	15.87	64,28
	analysis and discussion of life situations from a legal point of view	20.90	26.67	36.51	71,42
4. Future educational paths planned		11,94	26.67	38.10	85.71

The sample is made up of full-time students who undergo basic professional training at universities – therefore, formal education is presented in 100% of respondents. Some of them already have a diploma in another specialty and receive a second higher education. But this percentage is extremely low (one or two students per the year), since working adults prefer to study by correspondence or distance learning. The Ukrainian education system allows you to get a second diploma in a master's program; five respondents took this opportunity, which makes up 17.86% of masters. Parallel study in two different specialties at the university is associated with a very high academic load, there are few such students.

In addition to traditional forms of formal education, different training courses were demanded among students, which result in obtaining diplomas or certificates.

This activity increases by the 4th and 5th year of study – when students already understand what professional competencies they need for better employment. Some of these courses are offered by local universities or private service providers – they are popular with master students. In early years, distance learning on Ukrainian and international online platforms (Coursera.org, Prometheus.org.ua, etc.) is much more popular. Most students are attracted by the opportunity to learn foreign languages – more than 90% of students indicated this as their main goal or additional positive effect.

Nonformal education is represented by a wide range of different events that the modern educational services market is rich in. As in the previous case, the most popular was online training, with more than 70% of respondents resorted to during the year. Moreover, more than a third of cases have

nothing in common with the professional field – law. Using informal learning methods, young people learn foreign languages, comprehend modern art, and penetrate into the pressing general humanitarian problems of mankind. They acquire knowledge and practical skills in the most diverse and unexpected areas: sports and a healthy lifestyle, psychology, marketing, self-promotion, photography, art, cooking and much more.

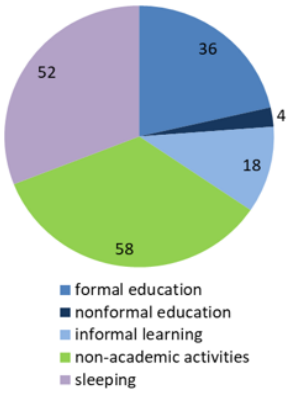
Junior students prefer affordable ways of learning: free, short-term, with a free form of access and attendance. Many attend open lectures of opinion leaders on legal and humanitarian issues (such events are regularly organized by the university). Masters prefer master classes, where they can personally familiarize themselves with the practical experience of reputable experts. Corporate resources – trainings and seminars that are directly related to current work tasks – are available for respondents who are already working in their specialty.

As we can see from Table 2, the demand for nonformal forms of education is growing along with the age and educational experience of students.

All students without exception noted that one way or another they study independently without the participation of teachers (informal learning). Most often, they look for the necessary information on Internet resources: watch videos on YouTube and TED, read professional literature (books and periodicals), analyze and discuss current events from the point of view of the legal situation. In their third year of study at the university, students begin professional practice, where they test knowledge, skills and competencies they have gained.

An analysis of the answers to the question about the time spent for different forms of education showed that, on average, various forms of learning activity occupy about a third of students' temporary resource. The study load is 58 hours a week, this is exactly the same as that left for other forms of activity: communication, leisure, work, etc. In Figure 1, we included sleep time at the rate of 7.5 hours per day as the optimum for this age group. The data obtained are very averaged, since the scatter of individual indicators is quite large.

Figure 1.
The average time (hours per week) that students spend on different forms of learning activity.



Lectures, seminars and workshops at the university are the most regular and long-term type of educational activity of students, it takes from 18 to 45 (on average 36) hours a week. Nonformal education is characterized by short-term duration – it is mainly 2-5-hour irregular events; students spontaneously attend what is in their area of their interest. Self-study is fairly regular. It accompanies formal learning activities and takes an average of 18 hours a week (data scatter is from 5 to 30 hours; this indicator is closely related to student performance).

It is interesting that non-formal learning was recognized as the most effective by students. 40% of the respondents indicated the extreme benefit and practical applicability of the experience. Subjective assessments of formal education ranged from extremely low to high. The noted advantages of studies at the university included: fundamental knowledge and the ability to directly contact teachers, receiving feedback. Most students recognized self-study as extremely ineffective. For them, this is only an additional, auxiliary element for consolidating the knowledge acquired at the university.

Interesting results were obtained regarding the dynamics of the development of curricula and prospects of students. The percentage of respondents who have an idea of their future and include different types of LLL is steadily increasing - from 11.94% in the second year to 85.71% among master students.

It turned out that it is difficult for most students to project and formulate their own educational trajectory. Most of the answers relate to formal learning: “finish my studies and get a good job”, “continue studying in a magistracy”, “get a scientific degree”, etc. They do not plan to do an independent internship or practice related to building up professional experience. The survey showed that students quite often think about getting a second specialty (18 people indicated this, i.e. 8.26% of the total sample). These cases reflect disappointment in the chosen profession and/or the initial lack of educational motivation.
Additional study or improvement of a foreign language is planned more often than others among the methods and directions of nonformal education. But in general, students do not have clear plans for nonformal or independent education.

Comparative analysis of samples and identification of the distinctive qualities of LLL-oriented students

Based on the obtained data, we divided the students into two samples according to the criterion of the activity of learning. The sample we called “LLL-oriented” brought together students who:

1) indicated 6 or more diverse forms of gaining knowledge during the year (the median value of this indicator in the total sample);

2) along with formal education, used nonformal and independent forms of learning;

3) pointed out the benefit of the experience gained in various areas of their life;

4) formed positive learning prospects for the future.

There were 98 such people, i.e. 44.96% of the total sample. We considered the rest of the sample as a control group of “ordinary students”. We assume that these students may show LLL activity in the future when life circumstances change, therefore, the data obtained reflect only the features of the student sample.

A comparative analysis of diagnostic parameters in the samples allowed us to identify the qualities that distinguish respondents with high academic competence and can be considered markers of the LLL orientation of university students – Table 3.

Table 3.
Comparative analysis of samples of students with high and low learning activity

Measured indicators:	"Ordinary students", N=120 (M±SD)	"LLL-oriented students", N=98 (M±SD)	Mann-Whitney U	Significance of the differences p-level
Age of students	20.96 ± 6.11	21.85 ± 5.93	5343.5	0.245
Academic performance (average rating for two semesters)	78.75 ± 15.23	83.12 ± 20.4	9523	0.094
Raven's Progressive Matrices (2002) (% of correct answers)	88.56 ± 8.55	92.41 ± 7.56	9641.5	0.127
Self-assessment of metacognitive knowledge and metacognitive activity (Skvortsova, 2005; Kashapov, 2012)				
Metacognitive knowledge	10.77 ± 5.67	12.16 ± 3.92	8166.5	0.001*
Metacognitive activity	7.15 ± 3.84	10.27 ± 4.12	7878.5	0.000*
Concentration	2.10 ± 1.02	2.34 ± 1.53	10094	0.365
Ability to receive information	3.88 ± 1.65	5.16 ± 0.79	8830.5	0.010*
Selection of key ideas (metacognitive goals)	1.97 ± 2.10	2.83 ± 0.83	9527.5	0.096
Ability to manage time	4.03 ± 0.91	5.85 ± 1.16	9208.5	0.038*
Reflexive skills (Savchenko, 2016)				
The level of development of reflective experience	414.0 ± 30.7	451.7 ± 32.2	3382.5	0.000*
Cognitive reflective skills	105.7 ± 15.8	112.5 ± 14.8	8765.5	0.007*
Metacognitive reflexive skills	145.9 ± 22.8	158.2 ± 26.3	4781	0.000*
Personal reflexive skills	162.4 ± 20.9	181.0 ± 21.3	4333	0.000*
Questionnaire of implicit theories and learning objectives of C. Dweck (Komilova et al., 2008)				
Acceptance of the implicit incremental theory	8.15 ± 1.58	8.27 ± 1.35	10235.5	0.466
Acceptance of the implicit theory of "enriched personality"	2.05 ± 1.63	5.16 ± 0.89	8620.5	0.004*
Acceptance of learning goals	1.24 ± 3.42	8.86 ± 2.27	4887.5	0.000*
Learning self-assessment	5.10 ± 2.11	5.87 ± 2.07	9701	0.147
General self-efficiency scale	27.16 ± 3.20	30.56 ± 2.15	7777.5	0.000*
Diagnostics of the motivational structure of personality (Milman, 2005)				
- motivation for maintaining sustenance	10.28 ± 2.14	6.40 ± 3.25	5661	0.000*
- motives of comfort and safety	10.77 ± 1.62	7.35 ± 2.39	5840	0.000*
- prestige and status motivation	8.39 ± 2.33	8.77 ± 2.45	10366	0.581
- motivation for communication, joining a group	12.60 ± 2.80	11.77 ± 2.35	9909	0.248
- motivation for general (business) activity	7.58 ± 3.12	8.42 ± 2.44	9172	0.036*
- motivation for creative activity	12.11 ± 2.78	13.45 ± 3.20	9334.5	0.067
- motivation to bring public benefit	10.65 ± 2.47	13.89 ± 2.21	7870.5	0.000*
Progressive motivational profile	29.44 ± 5.16	22.52 ± 4.81	4325	0.000*
Regressive motivational profile	30.34 ± 5.07	35.76 ± 5.18	4915	0.000*

Note: * p≤0.05 confirms the statistical significance of the differences; in this case, the hypothesis H0 is rejected and the hypothesis H1 is accepted – the group of LLL-oriented students exceeds the control group in terms of the severity of the sign.

The average indicator of academic success in the sample of LLL-oriented students is slightly higher, but the difference does not reach the level of statistical significance (p=0.094). The scatter of data for this indicator is very high; in both groups there are students with very high and low scores.

There were also no significant differences between the samples in the level of general intelligence measured using the Raven Matrices (p=0.127). All students do quite well with non-verbal tasks, which indicates developed cognitive abilities.

The similarity of the groups was found on the scales of the Questionnaire of Implicit Theories and Learning Objectives. Law students are convinced of the possibility of developing, "building up" their intelligence in the process of cognitive activity (p=0.466). Self-assessment of inclusion in the educational process is expressed in both samples at an average-positive level (p=0.147): in different situations, learning can give students pleasure or cause stress and anxiety. The level of metacognitive manifestations in groups also significantly differs. Summarizing the results, we note the distinguishing features of LLL-oriented students.

- High self-assessment of the level of metacognitive knowledge (p=0.001): the functioning of one's cognitive processes (attention, memory, thinking), the ease of acquiring new knowledge and its application in various situations. High metacognitive activity (p=0.000) is manifested primarily in the self-organization of cognitive activity, the development of self-regulation skills and management of their cognitive processes. LLL-oriented students have expressed ability to receive and store information (p=0.010), the ability to effectively organize and distribute their time (p=0.038).

The ability to choose metacognitive goals (main ideas) in this group is slightly higher, but the difference does not reach the level of statistical significance (p=0.096). Most likely, this metacognitive ability is in the process of development. In the process of formal and non-formal learning, students acquire the skills of independently identifying information that is important for further study.

- The level of development of reflexive experience and a high level of reflexive competence (p=0.000), i.e. the ability to "track" their mental and practical actions and analyse their correctness. The reflective skills of LLL-oriented students have advantages at all levels: 1) cognitive, which is manifested in the analysis of the existing knowledge system, its compliance with the requirements of the situation (p=0.004); 2) metacognitive, when the student's mental activity is aimed at analysing and regulating their own intellectual activity (p=0.000); 3) personal, aimed at resolving internal contradictions in the process of self-knowledge, self-determination, self-projecting and self-development (p=0.000).

- The prevalence of a progressive motivational profile (p=0.000) with a pronounced focus on motivation for general (business) activity and the desire to bring public benefit, while the needs for maintaining sustenance and the motives for comfort/safety are much lower. LLL-oriented students are characterized by energy, orientation toward achievements, creation, understanding and cognition, the desire to realize the knowledge and skills gained in significant useful activities.

- One of the most expressive differences between groups relates to the acceptance of learning goals (p=0.000). LLL-oriented students are much more focused not on quick results and good scores (performance goals), but on mastery of skills and the ability to learn something (learning goals). In this group, a degree of acceptance of the implicit theory of "enriched personality" is relatively high (p=0.004). Unlike the control group, LLL-oriented students consider the learning process not only as a way to develop intelligence and achieve professional excellence, but also as a way to develop their personality in all its diversity. They are convinced that a person is a subject of personal growth, and they are confident that they can significantly affect their own personal characteristics. These internal ideas (subjective categorizations) affect the specifics of learning motivation and act as the main regulators of activity both in education and in other areas of life (for example, in relationships). Therefore, LLL-oriented students are not afraid to fail and are actively involved in situations with an uncertain outcome. They tend to "work on themselves" and are more tolerant of the failures and weaknesses of other people.

- Significantly higher self-efficacy (p=0.000). LLL-oriented students are convinced that they are able to behave in such a way that will lead to the desired results. Confidence in one's abilities and belief in the success of one's actions stimulate active and conquering behaviour in a wide range of social, educational and professional situations.

A comparative analysis showed that differences in educational activity and LLL orientation are associated not so much with academic performance and cognitive abilities as with metacognitive characteristics and personal qualities of students.

Discussions

The study contains a detailed statistical analysis of the forms of learning used by students at different stages of education. These data are essential for building a holistic educational policy and the practical organization of effective education for specialists based on the LLL principles. In Ukraine, such studies are just beginning to be carried out in different professional groups (Serbin and Kulyk, 2019; Bochelyuk, 2020). Their implementation is complicated by the lack of a unified measuring technique, which would make it possible to compare the results obtained and track their dynamics, as well as the lack of generally accepted criteria for the formation of LLL competencies. Data on the educational activity of law students are published for the first time; it is important to continue to study and detail these trends.

The dynamics of learning is noteworthy. The demand for additional formal and non-formal education is growing along with the age and educational experience of students. Young people are mostly immersed in their main activity and are not looking for sources of additional education. We understand that students are an actively learning social group; specially organized training is the main type of their activity, in which course personal and professional identities are formed. On the other hand, senior students and masters already have a job (sometimes a family), which reduces the overall educational activity, but makes it more focused.

Among adults who already have higher education and work experience, the most convenient and sought-after way to study is master's degree – a form of formal education that allows immersing in the academic environment, quickly getting a high-quality education and universally recognized qualifications. It was repeatedly noted in earlier studies of Ukrainian scholars that professional reorientation and retraining in adulthood not only expands a person's labour opportunities, but also allows changing his/her life program: revising his/her own values (Tychyna, 2013), restoring lost identity (Symonchuk, 2000), solving age and personality crises (Bochelyuk and Panov, 2020).

The question remains open about the age structure of the identified clusters, which can be a significant influencing factor. It is expected that psychological and social maturity is an important prerequisite for independent student learning activity. But when comparing the samples, no significant differences in age were revealed. This result refers us to the well-known position that for adults, the stages of development of thinking, be-haviour and personality are determined not by the chronological framework, but by the circumstances of life and the cultural context – occupation, experience, goals, attitudes, etc. (Craig and Baucum, 2002). Studying the correlations between age (or rather, maturity of a person) and the characteristics of cognitive activity in the context of the LLL model is an important prospect for further research.

An important fact was revealed in the survey: students do not plan their educational path in advance. Learning outside the university develops spontaneously and rather chaotically. In addition, most students demonstrate a low level of reflection of their cognitive activity – they do not understand the contribution that different types of education make to their development, they do not realize their cognitive needs, they cannot determine their cognitive style and choose the type of educational load that suits them. This situation can be explained by the fact that students do not have sufficient experience – neither at school nor at the university can they independently choose or adjust curricula. In the traditional (formal) education system, Ukrainian students are still objects, not subjects of education.

Before graduation, students constantly need external guidance that would stimulate, guide and evaluate the effectiveness of their cognitive activities. Using the model of evolutionary development of Kegan (1982), we can define this stage of formation as "interpersonal", which is characterized by culture of mutuality, interpersonal concordance orientation and conformism. The "team game" stage is normal and natural for adolescents, but it should be remembered that more than fifty percent of adults never go beyond it (London, 2011). The next stages of the formation of "orders of consciousness", which we consider as a perspective of cognitive development, are "institutional", based on self-system identity and personal autonomy (a person becomes an author of his/her own life, independently realizing himself in his career and social environment) and "interindividual" – the highest stage of self-awareness and self-understanding, understanding the limits of his/her own system of principles (Kegan, 1982).

The main mechanism of personality formation in this model is self-reflection; our study confirmed the fundamental significance of this metacognitive ability. In addition, in recent studies Savchenko, Alexandrova and Oliinyk (2017) explained that the formation of reflexive competence determines the functioning of the experience system at the meta-cognitive level.

Differentiation of students according to the level of educational activity and LLL orientation allowed identifying a number of significant differences. It has been noticed that LLL-oriented students are distinguished not by cognitive abilities (academic performance and intelligence), but by motivational

and personal characteristics: curiosity, orientation towards cognition of complex ideas and phenomena, prevalence of the motives of creation over the motives of storage. High learning activity of students is reliably associated with the level of development of meta-cognitive competencies: reflective skills, awareness of their cognitive abilities and limitations, the ability to receive and apply information, self-organization, self-regulation of cognitive processes, implicit theories and goals of learning. These data expand existing knowledge about the "soft skills" necessary for life success (Kautz et al., 2014; Field, 2012).

In the context of the latest Council Recommendation on Key Competences for LifeLong Learning, the listed qualities fall into two categories: personal (intrapersonal) competencies, i.e. self-awareness, self-government and other aspects that help regulate thoughts, emotions and behaviour in achieving goals, as well as learning (intellectual) competencies that help a person maintain activity in learning (European Commission, 2018). As the results showed, the cognitive, metacognitive, personal and behavioural aspects of LLL are closely interrelated and affect each other.

The definition and description of learning competence given by the European Commission gives us every right to attribute it to metacognitive phenomena. Learning competence is aimed at understanding and improving one's own cognitive functions (global awareness, creativity, analytical and critical thinking, responsible decision making, problem-solving, autonomous learning skills). A person should know the strengths and weaknesses of his/her qualifications, be able to reflect critically on the purposes and aims of learning, look for available training opportunities, and also understand what forms and methods of learning are most preferable for him/her. Students with learning competence can organize their own studies, evaluate their own work and seek advice, information or support when necessary.

It has long been theoretically substantiated and empirically confirmed in science that metacognitions are an acquired quality, therefore, they can be purposefully developed. Metacognitive awareness is formed in the process of acquiring educational experience, that is, knowledge of one's individual abilities and limitations, the ability to evaluate them, track the course of one's intellectual activity, adjust it as necessary, and also consciously formulate cognitive goals and strategies (Flavell, 1979; Kholodnaya, 2002; Kashapov, 2012). Metacognitive processes initiate and complete cognitive activity, and in case of difficulties, in situations of uncertainty or high responsibility, they are actively included in activities as independent components (Roberts and Erdos, 1993). Our work allows us to clarify the features of the development of various metacognitive phenomena in the student population.

It is important to understand that not all educational and cognitive activities contribute to the formation of metacognitions. Thus, Skvortsova, (2005) found in her study that the basic professional education of teachers does not determine the level of development of their metacognitive characteristics. We believe that the development of metacognitive competence is a direct consequence of the variety of forms of learning that students use, gaining experience of successes and failures in a wide variety of activities.

Our results show that the experience of additional education in nonformal and informal forms is closely related to the metacognitive and reflective competence of students. There is every reason to believe that it is here that the skills to analyse and regulate one's own cognitive processes are developed and improved. The highest level of such regulation is the awareness of their own cognitive needs, building their educational trajectory that takes into account the cognitive potential of an individual, its leading motives, as well as the requirements and limitations of the external environment.

It is necessary to consider the problem of the inclusion in the self-regulation of learning everyday (implicit) students' ideas about the possibility of changing personality and intelligence in the educational process. New evidence has been obtained that LLL-oriented students are distinguished by their internal conviction in the possibility and necessity of "working on themselves," improving their personal qualities. It is interesting that a sample of students with high learning activity demonstrated a rather critical assessment of their educational effectiveness. Kornilova et al. (2008) found that the self-esteem of inclusion in the educational process negatively correlates with the level of independence, that is, students motivated for learning and acquisition of mastery recognize the inadequacy of their own activity in the organization of learning, their dependence on its externally determined structure. On the contrary, students who highly value their efforts and results easily accept the position of "followers" in their learning. These observations explain our results.

Let us pay special attention to one of the varieties of motivation of students, namely the desire to bring public benefit. This motive is important as an element of the professional position of future lawyers. In addition, the motivation to bring public benefit reflects the opportunities of LLL to integrate an individual into the social space. Milman (2005) considers this motive "the highest aspiration in a person" and notes that the ratio of progressive and regressive motivation depends on age and the level of professional

development. Our work shows that this motivation prevails in the group of LLL-oriented students, which confirms the social significance of LLL.

Previous studies have shown that life-long learning requires personal characteristics such as self-direction (Candy, 1991), self-development, a focus on learning and openness to new experience (London and Smither, 1999), resilience, resourcefulness and reflectiveness (Claxton, 2000), self-efficacy, internal locus of control, cognitive abilities, self-monitoring and public self-consciousness (Sessa and London, 2006). These data are confirmed by the obtained empirical results, the significance of meta-cognitive competencies and their gradual formation in the learning process are shown.

The study confirms the high level of self-efficacy of LLL-oriented students. We know that belief in the effectiveness of one's actions significantly affects a person's behaviour: it determines the level of his activity, the complexity of the tasks and the level of goals, perseverance in overcoming difficulties, and a general life scenario. High self-efficacy is directly related to high achievement and social integration (Schwarzer et al., 1996). The obtained result can be interpreted in two ways. On the one hand, it is obvious that the level and quality of education increases the students' self-esteem and realization of their competence. On the other hand, the situation of learning something new is often associated with the risk to the individual. These risks are justified in the works of Field (2012), because LLL requires greater self-efficacy, that is, belief in one's abilities and strengths in order to achieve positive life changes.

Conclusions

LLL orientation of students is determined by a number of criteria, primarily the regular use of various methods of formal, informal and independent learning, aimed at expanding and improving their professional and life competencies. It is also important to understand the benefits of the experience gained in different areas of life, to form positive and flexible (adaptive) educational prospects. About 45% of the law students surveyed meet these criteria.

Students with high learning activity have a number of characteristic differences that can be considered markers of the LLL orientation: a high level of metacognitive knowledge and metacognitive activity, reflective competence (at the cognitive, metacognitive and personal level), internal involvement in educational activity, focus on acquiring professionalism and personal development, general self-efficacy, the prevalence of progressive and creative motives over consumer ones. The analysis showed that LLL orientation is associated not so much with academic performance and general cognitive abilities as with metacognitive characteristics and personal qualities of students.

Learning competence is a metacognitive phenomenon. This is an important psychological formation, which is formed in the course of active and diverse learning activity corresponding to the motivational orientation of students. In the process of studying at a university, students detail their cognitive needs, increase their general cognitive activity and increase their selectivity in the methods of obtaining knowledge. The experience of various learning activities and the accompanying changes in the cognitive sphere initiate the process of developing the ability to learn and form the "competence to acquire and renew competencies". In addition, there are qualitative shifts in reflection aimed at one's own cognitive processes. At the same time, it is difficult for most students to independently design their own educational trajectory that goes beyond formal education.

During training at the university, students need competent external guidance and targeted pedagogical interventions that develop metacognitive competencies (sophistication in choosing various forms of learning, analysis and assessment of their impact on their cognitive functions), which, in turn, ensure the successful development of LLL competencies.

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Conflict of interests

The authors declare no conflict of interest.

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Conceptual Framework of the Model of Forming Interethnic Tolerance in the Multicultural Environment of the University

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Abstract: The aim of this research is to study the state, dynamics and factors affecting the interethnic relations of young people in the field of education. This article discusses the conceptual foundations of the structural and content model of forming interethnic tolerance of young people in a multicultural environment of the university. Particular attention is paid to the study of new educational strategies and approaches that can create the desired socio-cultural and theoretical tolerance of representatives of other cultures, ethnic groups and religions. The research was a mixed method research and it made use of both quantitative and qualitative data. Secondary data for the article was derived from the scientific publications of other researchers and primary data was collected with the help of focus groups and indepth interviews.The 1000 participants of the research were carefully selected to represent nationals of other countries, culture and religion, to reduce the bias that sociological studies exhibit. The hierachy technique was used to analyze qualitative data. The authors present the results and analysis of sociological research for the analysis of interethnic tolerance of young people. It focuses on the psychological and pedagogical content of the phenomenon of interethnic tolerance, that can be taught to students in school. The authors offer evidence-based conclusions and recommendations on the organization of the process of forming interethnic tolerance of young people in a multicultural environment of the university.

Keywords: interethnic tolerance, multicultural environment, pedagogical concept, structural and content model.

Introduction

In the period where the Republic of Kazakhstan got its independence, some of the notable issues that the citizens had to deal with were interethnic relations and interethnic harmony. Kazakhstan supports the co-existence of people from different nationalities, races, religious views, and beliefs. This level of tolerance over the years has become a special Kazakh subculture, which distinguishes the model of the true Kazakh mentality.

The First President of the Republic of Kazakhstan, Nazarbayev (1996), in the book 'On the threshold of the XXI century', explained, "The transformation of the national idea into the idea of national exclusivity is fatal for the ethnos... Many states where they failed to recognise the positive and negative beginnings of the rise of ethnicity-consciousness have become the arena of protracted wars'. Yugoslavia, Algeria, modern Afghanistan, many African States are examples of states that failed to recognise the positive and negative beginnings of the rise in ethnicity consciousness.

In October 2008, the principles of the National Policy in Kazakhstan were developed and tested in practice. In Kazakhstan's model of interethnic harmony, the following aspects were identified: the consolidating role of the Kazakh ethnic group; tolerance; ethnic diversity, religious diversity, cultural and linguistic diversity; conditions for the development of culture and languages of ethnic groups of Kazakhstan.

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The goal of the present Kazakhstan generation is to become one of the most competitive civilised countries in the world. Active innovative processes in the socio-economic and political life of modern society have put the education system in need for a revision of both the traditional and new approaches used in the practical training of young professionals in all spheres of public life (Konst and Kairisto-Mertanen 2019; Ahi and Alisinanoglu, 2018; Vasiliene-Vasiliauskiene et al., 2020). A graduate of the university should have a culture of interethnic communication and interaction, have a tolerant mindset towards representatives of different ethnic groups living in a single territory, take into account the religious, regional and national specifics of the individual in the process of future professional activity and have intercultural competence in solving professional problems (Zhumabayeva, et al., 2019; Bagila et al., 2019; Agranovich et al., 2019; Usmani and Khatoon 2018; Elçi and Uzunboylu, 2020).

Interpersonal interaction in the modern world is one of the topical problems that need to be addressed. This is because most people lack the ability to interact effectively with other people (Kayedkhordeh, Mousavi and Abdi, 2018), to anticipate emotions, intentions, motivation of the interlocutor, the ability to manage their emotions and emotions of other people and to build emotional connections (Masat et al., 2018). It is necessary to develop emotional intelligence including empathy, acceptance of a person of another faith, nationality and religious views and beliefs, which makes the study unique (Ozkisi and Topaloglu 2018; Sorakin-Balli, Basari and Guldal-Kan, 2020). Uzunboylu and Altay (2019) reviewed of studies on multicultural education around the world. They found that more than half of the empirical studies employ a qualitative research about multicultural education design.

Culture is one of people's means of understanding and tolerating each other (Kececi and Kececi, 2016). Multicultural education, which is one of the most important features of the 21st century, is expanding its applications day by day (Emrali, 2017). It increases multiculturalism especially in communication established with technological tools (Pinpathomrat, 2017). In this process, it is very important for university students to learn new knowledge as a multicultural education (Al-Bataineh et al., 2019). In this process, students' tolerance and acceptance of each other is one of the most important indicators (Simion, 2016).

In this work, the formation of interethnic tolerance of young people in a multicultural environment of the university is grounded on the structural and content model, which is actively used by modern researchers in various fields of science. It allows building mechanisms of educational impact on the formation of interethnic tolerance of students.

The main objective of the study is to find and develop effective methods for the formation of interethnic tolerance. The introduction of the methods into the content of education focused on the study of the theory, methodology and practice of interethnic tolerance in the pedagogical and socio-cultural spheres.

The aim of the research is to study the state, dynamics and factors affecting the interethnic relations of young people in the field of education.

Tasks of research:

1. To study the problem of interethnic tolerance and dynamics of changes in relations between different ethnic groups.
2. To determine the structure of identification of different ethnic groups.
3. To identify the degree of integration of ethnic groups.
4. To determine the level of interethnic tolerance, preservation of ethnic diversity and assessment of the prospects of interethnic relations.
5. To study the effectiveness of the implementation of the state policy in the field of interethnic unity and harmony.

Materials and methods

The methodological basis of the research is the conceptual provision of modern science about humans and the factors influencing their self-development (Agha and ELDaou, 2018). It centres on the dialogical nature of culture and education, the revival of the humanistic paradigm of education, the development of cultural diversity and traditional culture in the formation of national and cultural identity, cultural-oriented education and the integration of the construction of the educational process (Agha and ELDaou, 2018).

Focusing on the psychological and pedagogical content of the phenomenon of interethnic tolerance, without understanding of which it is difficult to expect the creation of adequate and effective pedagogical strategies, and the analysis of sociological studies, similar to that of Gokal (2019) to diagnose the general level of interethnic tolerance of young people. The article uses the results of sociological research on interethnic relations of young people conducted in 2018 by the public Fund "Center for political and social

research" of Almaty region. The sociological survey uses focus group studies, expert evaluation, methods of statistical processing and qualitative analysis of the results. This research just like most educational research, uses a mixed method (Winch, 2020). The method of hierarchy analysis is used to predict social research.

Participants

The reason for the selection of the sociological research results obtained from "Centre for political and social research" of Almaty region was that it contained the issues of interethnic interaction and harmony, which plays an important role in the formation of interethnic tolerance of young people in a multicultural environment.

The integral assessment of the state of interethnic relations and interethnic tolerance in the conditions of the multicultural environment of the university is an indicator. In total, there were 1000 respondents to the research. The respondents, aged between 18 to 22 years and representing different social backgrounds and specialties were interviewed. The nature of the ethnic affiliation of young people is shown in the figure 1. Among the participants, 636 people are Kazakhs, 161 people are Russian, 80 Uighurs, 49 Tatars, 28 Turks, 25 Koreans, 14 Germans, 4 Ukrainians, and 3 representatives of the Azerbaijan diaspora.

Data Collection

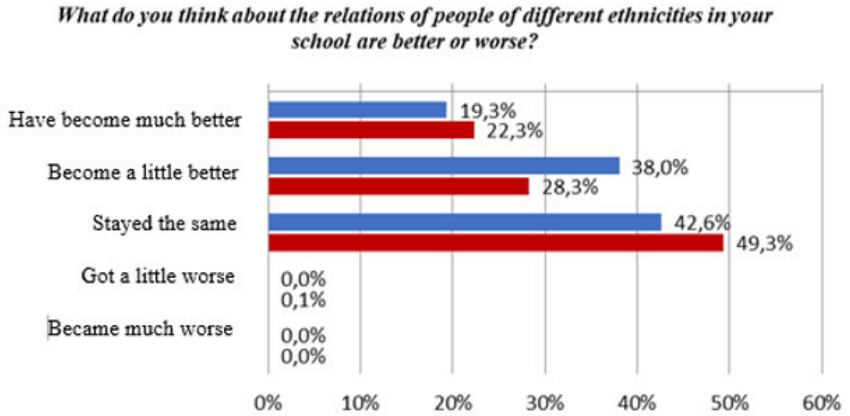
The article uses scientific and special methods, study and generalized analysis of scientific sources and documents, comparative analysis of scientific and methodological literature on the problem of research in the field of sociology, psychology, pedagogy and ethno-pedagogics, modelling, poll, questioning and interview, and presentation of long-term experience of research activities in the field of pedagogy and socio-cultural activities. The major source of data for this research is secondary data, obtained from the public Fund "Center for political and social research" of Almaty region.

Data was collected through focus group surveys and in-depth interviews with the participants of this research. The hierarchy technique for analysis was used to analyse the qualitative data of this research. The special methodology is composed of the following works reflecting the modern humanistic paradigm in education: a system-structural approach (Balyasnaya, 1995; Bespalko and Tatur, 1989), the project approach (Mazur, 2014) for studying the general principles and requirements of the education system, the axiological approach (Damy and Plascencia, 2020) for analysing the processes and phenomena of vocational education in the socio-cultural sphere, and the integrative approach (Anastasiadou, 2019; Gershunsky, 2002; Pidkasisty, Fridman and Garunov, 1999), which ensures the integrity and consistency of the pedagogical process.

Results

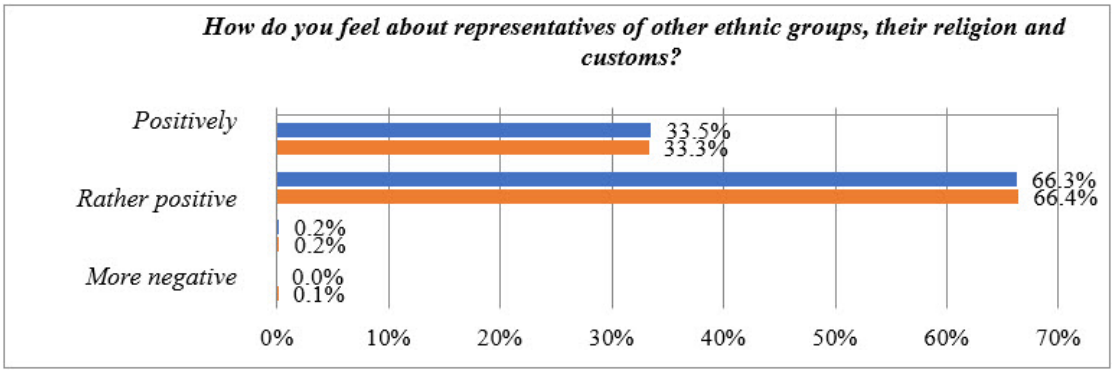
From the statements of some of the respondents in the course of the study, it was discovered that there is a deterioration of the relationship between different ethnic groups. These are isolated cases of violations of rights on the basis of language, and these problems are common among young people.

Figure 1.
Focus group survey results



Answers to the question "How do you feel about representatives of other ethnic groups, their religion and customs?" This question was used to assess the degree of interethnic tolerance of young people in the educational environment to representatives of other ethnic groups. In general, it can be stated that the majority of respondents have a stable positive perception of the customs and religion of other ethnic groups, and are open to ethnic communication. This perception is due to the assimilation processes, common historical destinies of peoples, the so-called phenomenon of the "United Soviet people", and the joint holding of various events.

Figure 2.
Focus group survey results



To the question, "Are there representatives of another ethnic group in your family?" To this question, 24.7% of the respondents answered "Yes", and 75.3% respondents answered "no".
To the question, "How do you feel about the fact that someone from close relatives can become related to representatives of another ethnic group (nationality)?" 49.9% of young people surveyed said that they are not against interethnic marriages, if only they were decent people. In general, there is a tendency to tolerate interethnic marriages in the majority of respondents, regardless of ethnicity. Less frequently, respondents pointed to the unacceptability of inter-ethnic marriages. Most often representatives of the Kazakh ethnic group -repatriates "oralmans", citing the desire to preserve ethnic identity, pointed this out.

Table 1.
Focus group survey results

How do you feel about the fact that someone from close relatives can become related to representatives of another ethnic group (nationality)?	Take this negatively, maybe will let	0,0%
	It depends on which ethnic group she/he is with	22,7%
	I do not approve; I think it is better to avoid it	2,1%
	It's all the same to me	22,9%
	Not judging, if these representatives are people of good character	49,9%
	I welcome and promote; ethnicity is not the main thing	2,4%
	Total	100,0%

According to the participants of the study, any conflict situations between representatives of different nationalities can only occur in the form of scuffles and fights involving no more than a few people, with the causes of what is happening, in most cases, domestic.

In everyday life, places of localization of interethnic tension are areas related to formal organizations, and the area of short-term, impersonal contacts (public transport, shops, cafes, cinemas, etc.). The intensity of such phenomena is low, however, such phenomena are a serious danger, because under certain conditions (a factor or an event that stimulates ethnic strife), they have a very high potential for spread in the form of "social infection". The most common behaviors of the respondents as a response to the inability to solve the problem, is a peaceful settlement of the conflict. Less often in the manifestation

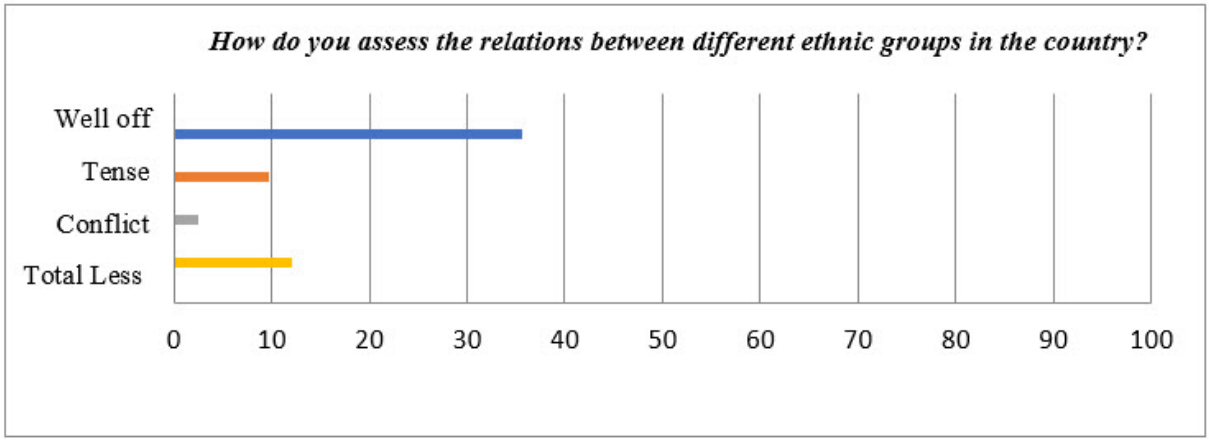
of aggression, respondents are ready to demand action from the authorities.

In determining the civil and ethnic identity, it is important to understand how the beliefs and attitudes of young people in social relations contribute to the formation of civic identity.

Young people support the policy pursued by the state in the field of inter-ethnic relations, in most cases. According to respondents, interethnic harmony will contribute to the preservation of the country's independence and economic prosperity. The results of the study show that civil identification is primary for the majority of representatives of all ethnic groups. Most often, they define their community through a small homeland, the whole country, as well as through categories such as family, friends, etc.

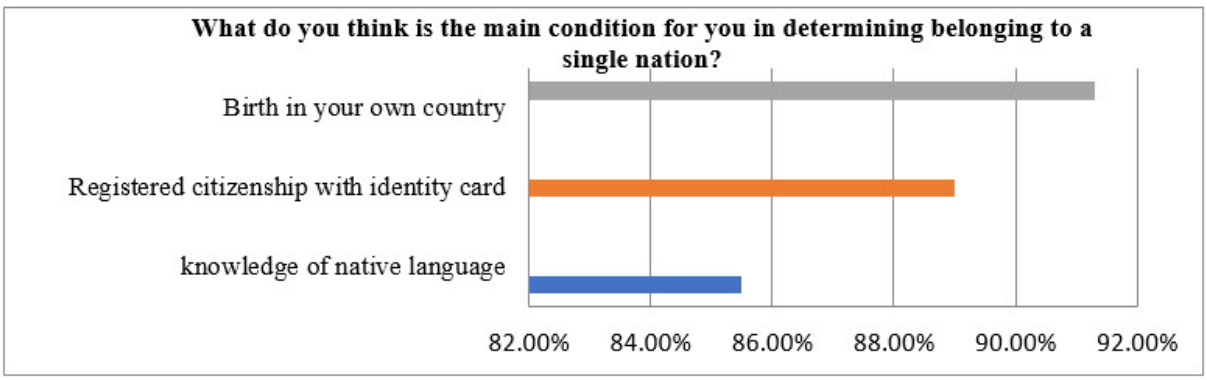
In a sociological survey, respondents were asked, "How do you assess the relations between different ethnic groups in the country?" The interethnic situation in the region was assessed as calm by 47.5% of respondents. More than a third (35.6 %) of respondents consider the relations between ethnic groups in the country to be good. The total number of low assessments of the situation, which are "tense" and "conflict" are respectively 9.7 % and 2.5 %, which is less than 12 % of respondents.

Figure 3.
Focus group survey results



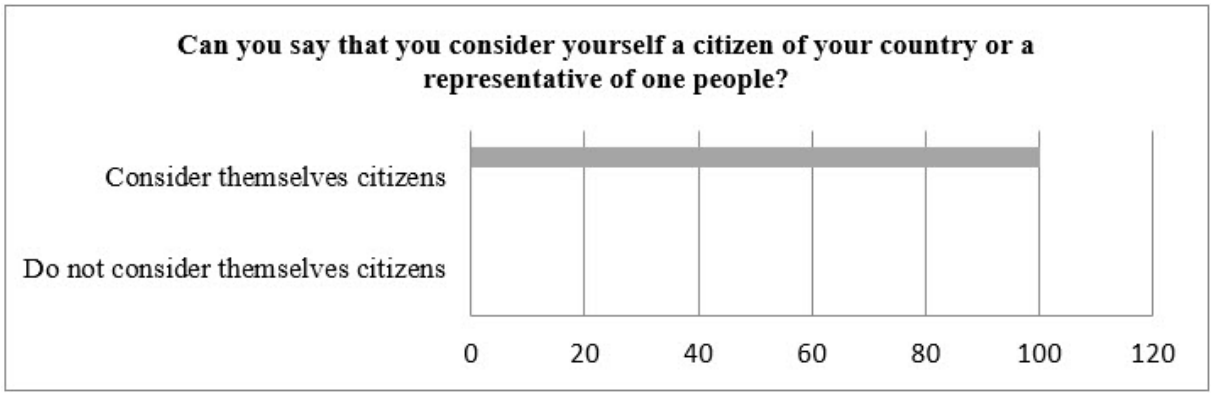
Analyzing the answers of respondents to the question "What, in your opinion, is the main condition for determining your belongingness to a single nation?" Three most important characteristics for respondents in determining belongingness to a single nation are birth in the territory of their country – 91.3%, issued citizenship in the certificate like passport – 89%, and knowledge of the native language – 85.5%.

Figure 4.
Focus group survey results



To the question, "Can you say that you consider yourself a citizen of your country, i.e. a representative of one people?" Hundred percent (100%) of respondents consider themselves citizens of their country, i.e., representatives of a single people.

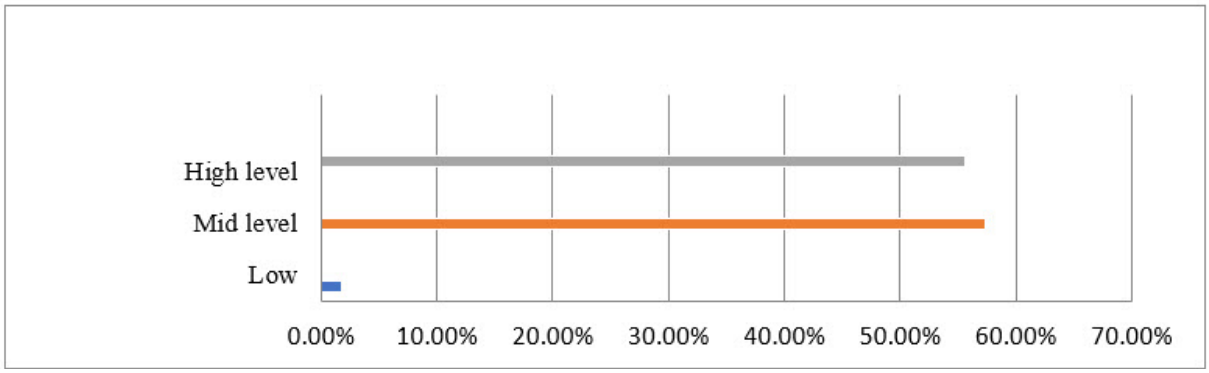
Figure 5.
Focus group survey results



Thus, regardless of what ethnic group, religion, place of birth, or place of residence, people consider themselves as citizens of their country. In addition, the overwhelming number of respondents identified themselves as representatives of a single people of their country, which speaks of community, tolerance and unity.

The study showed that to the question "Do you observe traditional holidays, rituals, customs of your ethnic group?" almost all respondents respond positively. The answers to the first question on the questionnaire for the student audience are diverse. As evident in the results, the column "Yes, I always observe" is at a high level – 55.6%; at the average level – 57.4%; at a low level – 1.8%. Almost all respondents answered positively on this question. It should be noted that the observance of traditional holidays, rituals, and customs is characteristic of all, regardless of what ethnic group they are.

Figure 6.
Focus group survey results



Thus, the analysis of the results of sociological research gives grounds to believe that in the multicultural environment of the university, there is a calm ethno-social situation. However, there are signs of hidden ethnic tension in the student community, which cannot go unnoticed. In this regard, there is an urgent need to determine the model of formation of inter-ethnic tolerance of young people, which will be most effective for modern Kazakhstan and can be used in socio-cultural practice.

The scientific basis of the study was the socio-cultural approach which is the idea of 'cultural mediation' associated with the understanding of the symbolic context of interpersonal interactions and ethno-cultural-oriented approach (Stefanenko, 2008; Metin and Aral, 2020), as tools of culture, acting as a means of mastering a person's own psyche, consciousness and personality.

The relevant research of Öksüz and Öztürk, (2017) is a multicultural approach based on multicultural education as a necessary condition for tolerant coexistence of various ethnic and cultural groups. The study was conducted in the fields of psychological and pedagogical sciences: ethno-psychological approach, based on the study of similarities and differences of psychological variables in different cultures and ethnic communities (Miyamoto 2018; Triandis, 1994); ethno-pedagogic approach, revealing the importance of national educational experience in the formation of personality; and environmental approach considered as a set of influences and conditions that ensure the implementation of the educational process. The priority for the study was the study of Rubinstein (2003) an ontological approach based on ethics included in the ontology or ontologically oriented content of education.

Among the practical prerequisites of the study are a number of legal documents that mark the mission of interethnic tolerance in the development of multicultural diversity of the country, and are the subject of intercultural interaction and social harmony, materials of the domestic and foreign periodicals, scientific sources and applied research of the authors. In general, the opinion of the majority of respondents, regardless of nationality and region of residence, on various aspects of inter-ethnic tolerance is characterized by a consensus, which indicates a high degree of inter-ethnic harmony in educational institutions.

Discussion and Conclusion

The main purpose of education, arising from the modern understanding of the mechanisms of development of human civilization, is to ensure the advanced development of creative qualities and abilities of man, familiarizing him with the values of the world and national culture, education of spirituality, morality, patriotism, tolerance, and humanism in all subjects of the educational process (Cakmak and Uzunboylu, 2018). In a research, Tenbele (2019) concluded that higher educational institutes have the ability to change the perspective of students by modifying their pedagogical method.

The above-mentioned determines the principal role of the pedagogical phenomenon of interethnic tolerance in the education system, which acts as one of the main state and public institutions responsible for the organization of a common spiritual space, preparation of the individual for life in a multicultural society and full self-realization of each individual.

1. As a result of empirical studies, internal and external factors influencing the formation of interethnic tolerance were identified. The study of the problem revealed the components of the formation of interethnic tolerance: ethno-cultural, cognitive-evaluative, emotional-reflective, operational (see diagram 1).

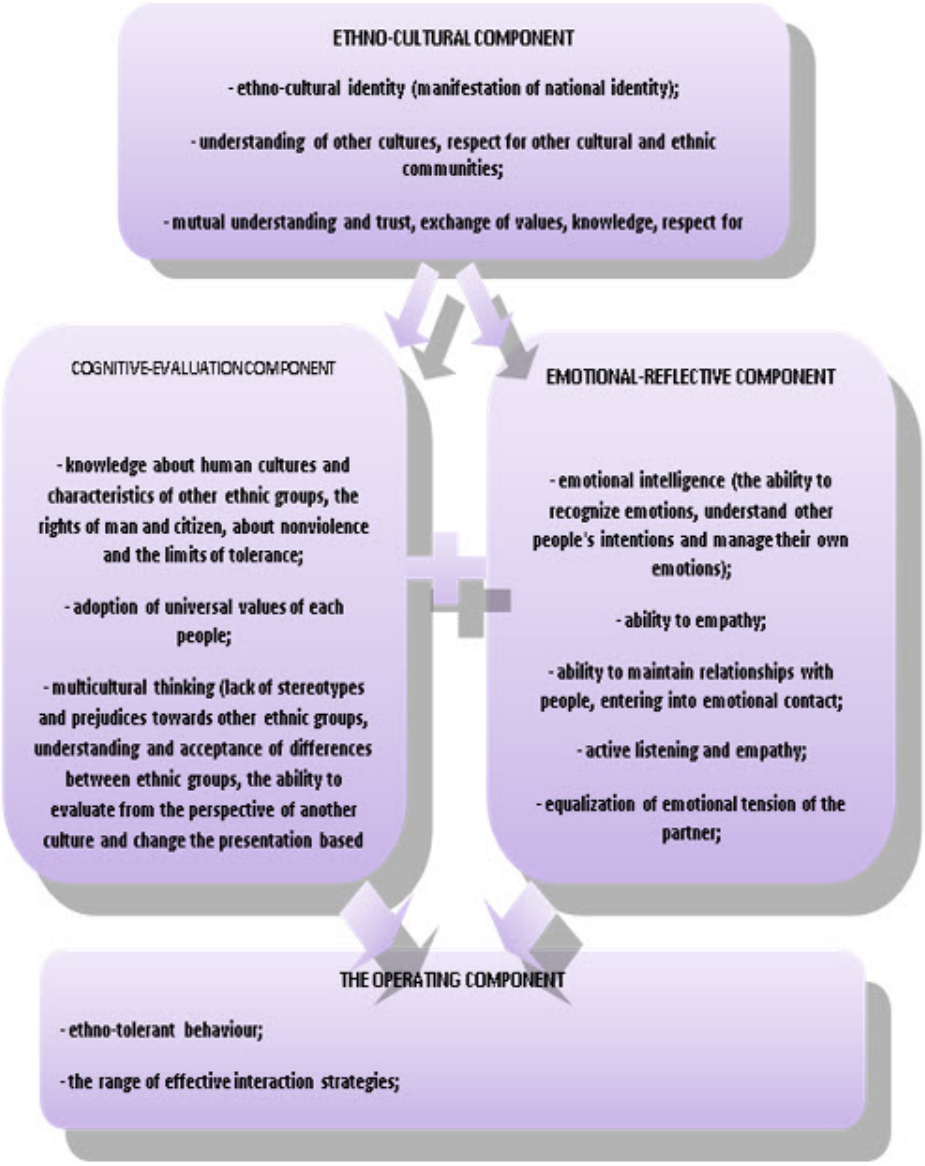
2. Studying various aspects of the problem of forming interethnic tolerance of young people, we inevitably come to consider the possible application or implementation of this phenomenon. The direct object of research in our work is the multicultural space of ethno-cultural associations. Considering the Concept of development of the Assembly of people of Kazakhstan (until 2025) from December 28, 2015, we have identified the principles and foundations of education, corresponding to the system of conditions for the formation of inter-ethnic tolerance of young people, which is based on the theoretical study of the problem of research. This concept is a systematized basic guideline aimed at the formation of national unity, ensuring social harmony and stability, increasing the dynamics in the field of inter-ethnic relations and improving mechanisms through a multicultural educational environment. The problem of inter-ethnic tolerance is relevant for these institutions, as they unite people of different nationalities and cultures. We consider this existing system of education as a model of formation of interethnic tolerance of youth.

3. Creation of the author's model of forming interethnic tolerance of youth in the conditions of multicultural educational environment of the university was carried out simultaneously in two directions: a) definition of its structure and content; b) development of ways of its implementation.

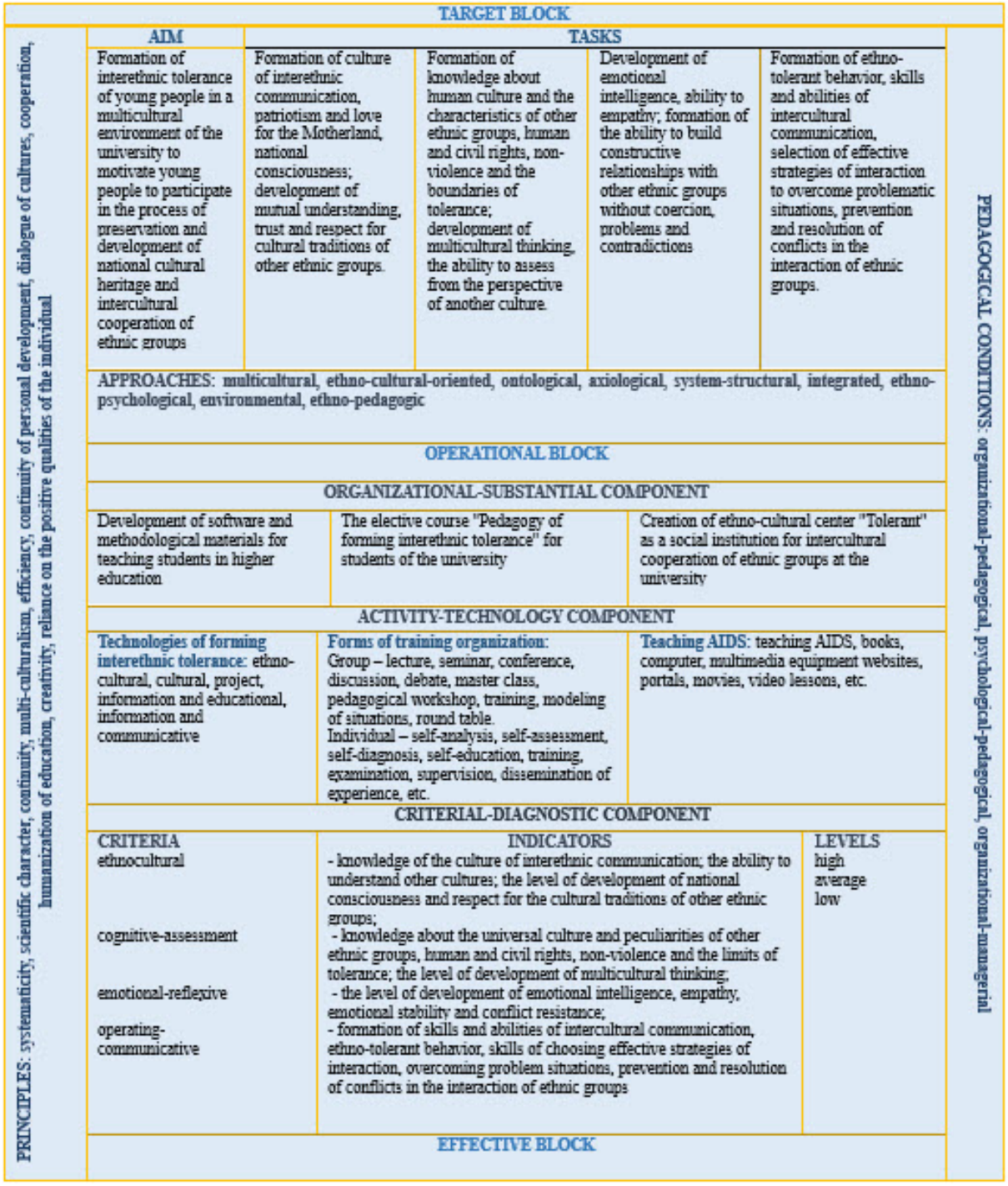
4. The designed structural and substantial model of formation of interethnic tolerance of youth is considered as a subsystem of open type, built in the context of the system of professional training of specialists at the university. This model is a set of interrelated blocks: target, operational, effective.

The target block of the model defines the purpose, objectives and conceptual approaches to the formation of interethnic tolerance of young people in a multicultural environment of the university. The operational block of the model contains the unity of interrelated components, organizational and content component that determines the software implementation of the goal; activity-technological component of the model determines the organization of the process of forming interethnic tolerance of youth; criteria-diagnostic component of the model includes criteria, indicators and levels of formation of interethnic tolerance of young people. The effective block of the model determines the effectiveness of the results of the formation of interethnic tolerance of students in a multicultural environment

Diagram 1.
Components of formation of interethnic tolerance



Scheme 2.
Model of forming interethnic tolerance of youth



The implementation of the process of forming interethnic tolerance of young people will be accompanied by a high-quality level of certain conditions and principles. The conditions may include organizational-pedagogical, psychological-pedagogical, organizational-managerial, and the principles may include consistency, scientific, continuity, multiculturalism, effectiveness, continuity of personality development, dialogue of cultures, cooperation, humanization of education, creativity, reliance on positive qualities of the individual, allowing for the stimulation of this process in a multicultural environment of the university. The principles and conditions of forming interethnic tolerance of youth according to the authors of this research are the basis of pedagogical model of formation of interethnic tolerance of youth. Thus, the model of formation of interethnic tolerance is a systematic inclusion of different components of research and generally requires a creative approach to the understanding, production and implementation of the goal (see figure 2).

Implications and Recommendations

As a result of the study, we found that the feature of the author's model of forming interethnic tolerance of young people in a multicultural environment is its integrity, ensuring the unity of content (purpose, content of the process, result) and structural components (principles, conditions, pedagogical assistance, criteria, levels and indicators of formation of interethnic tolerance). This process is a unity of internal and external factors that determine the formation of interethnic tolerance: ethno-cultural, cognitive-evaluative, emotional-behavioral, and operational. Formation of interethnic tolerance in the multicultural environment of the university is aimed at theoretical, methodological and practical readiness of young people to understand the values and cultures of different people and the integration of the ideas of ethno-pedagogy and pedagogy in the development of young people's abilities and skills tolerant inter-ethnic interaction, ethnic and cultural responsibility.

The model of forming interethnic tolerance of youth is a set of interrelated blocks: target, operational, effective and unity of components; organizational and content; activity-technological; criteria-diagnostic. For approbation of "organizational and pedagogical", "psychological and pedagogical" and "organizational and administrative" conditions of forming interethnic tolerance of youth, experimental works will be carried out, allowing to present results of the studied processes and phenomena in dynamics, to define tendencies and regularities of real interaction of integrative qualities of the investigated phenomenon.

The results of the study was confirmed by the effectiveness of the formation of interethnic tolerance of young people in the integrated implementation of pedagogical techniques in a multicultural educational environment which motivates young people to participate in the process of preservation and development of national, cultural heritage and intercultural cooperation of ethnic groups;

The use of the potential of ethno-cultural associations will contribute mostly to the formation of inter-ethnic tolerance of young people under the following conditions:

1) taking into account the set of principles, forms and methods of socio-cultural activities in working with young people to develop inter-ethnic tolerance;

2) monitoring according to certain criteria, showing the level of formation of interethnic tolerance of students in a multicultural environment;

3) introduction of the author's model and pedagogical program for the formation of interethnic tolerance of students in the pedagogical process;

4) expansion of intercultural relations of ethno-cultural associations with other subjects of social and cultural activities, contributing to the formation of interethnic tolerance of students.

One notable limitation of this study is that it cannot be generalized for other countries due to the geographical positioning of the research. This is because the research was conducted in Kazakhstan and even though people from other nationalities participated in the research, there may exist a different mindset or mentality if this research is replicated in a different country. The researchers therefore recommend that future researchers consider replicating this research in different countries to validate further the results of this research.

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Conflict of interests

The authors declare no conflict of interest.

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Gnostic Emotions of Students in Solving of Thinking Tasks

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Abstract: The paper presents the results of an empirical study of the emotional characteristics of students when solving thinking problems. The study used an experiment that simulates a students' collaborative solution to the puzzle-doing problem. To study emotional variables, we used the method of B.I. Dodonov for determination of the general emotional orientation. To investigate feelings experienced by students, we used the method of K. Isard. According to the authors, the following types of general emotional orientation (with decrease) are dominated among students: altruistic, communicative, and mixed types. All students showed the dominance of emotions of interest, joy and surprise under the decision processes, regardless of the emotional type of personali-ty. It was revealed that under the processes of solving thinking problems, students with the dominance of various types of emo-tional orientation showed a different ratio of emotions. Four strategies of solving thinking problems were identified, which are characterized by the representation of various emotions.

Keywords: emotion, gnostic emotions, emotional orientation, thinking, strategies for solving thinking problems.

Introduction

In modern studies, emotions are understood as short-term, intense phenomena that have a clear cognitive content and a substantial reason available to a person experiencing emotion (Clore at al., 1994; Isen, at al., 1987; Michael, 2011; Oatley, at al., 1987; Scherer, 2000; Schwarz, 2000; Zinck at al., 2008).

Studies of the role of emotions in solving problems have shown that various emotional states and emotions can differentially influence the effectiveness of solving problems (Fiedler, 2001; Isen, at al., 1987). When studying the solution of complex problems (Spering et al., 2005) showed that the form of emotions, positive and negative emotions do not influence the solution of complex problems.

In Russian psychology, one of the first who came to the understanding that various people have preferences in the most desirable experiences was B. I. Dodonov. The person's experiences of his attitude to the world expressed in the dominant emotional states to which the person aspires lead to the formation of a general emotional orientation of personality. An important component of this orientation is the attitude to emotional experiences that are valuable for a person. As a result, B. I. Dodonov identified ten types of emotional orientation that make up some emotional-personal complexes that form a certain type of personality: altruistic, communicative, praxical, gnostic, gloric, aesthetic, pugnic, romantic, hedonic, acquisitive (Dodonov, 1978).

In psychology, quite a long time ago there were ideas about the unity of emotional and thinking activity (Tikhomirov, 2008; Vasiliev at al., 1980). In the psychology of thinking in the papers of V. E. Klochko (Klochko at al., 2000), it was shown that emotions participate in reflecting the systemic, psychological characteristics of objects in the form of "experiencing" the emphasis or value of a phenomenon that falls within consciousness. These studies follow the investigations of the role of emotions in mental activity. Within their framework, in the school of O. K. Tikhomirova, it was found that the solution to a thinking problem originates at an emotional, unconscious level; thanks to emotions, a search zone and work area are fixed, the volume of research activity changes (Tikhomirov, 2008). V. E. Klochko showed the role of emotional and verbal estimates in thinking activity (Klochko at al., 2000). Thus, it was found that emotions perform a regulatory function in the person who decides the problem (Tikhomirov, 2008). In studies of joint thinking, the emotional characteristics of preschool children (Belousova and Pavlova, 2013) and students (Belousova and Belousova, 2016) were shown in the processes of cooperation with peers in solving problems.

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K. Isard identifies fundamental emotions, which include: joy, surprise, sadness, anger, disgust, contempt, grief-suffering, shame, interest-excitement, guilt, embarrassment (Izard, 1991). P. Ekman suggested that six emotional states (joy, sadness, anger, disgust, fear, and surprise) are universal in all cultures (Ekman, 1992). In modern foreign studies, it has been shown that emotions differentially affect strategies and the quality of solving thinking problems. Positive emotions lead to flexible and creative thinking (Fiedler, 2001; Isen at al., 1987). People in a positive emotional state tend to use downward (top-down) processing strategies (heuristics), while negative emotional states facilitate upward processing (bottom-up) (Bless and Fiedler, 1995; Hertel at al., 2000; Schwarz 2000).

In a modern study, conducted on chess players, the authors showed the dynamics of changes in emotional states when solving complex problems. The authors explain this phenomenon as an involuntary manifestation of emotions that are associated with a change in perception and understanding of the situation (Guntz at al., 2018). The results are consistent with the studies of O. K. Tikhmirov, who showed that the role of emotions is changing at different stages of solving the problem (Tikhomirov, 2008). J. P. Forgas suggested (Forgas, 2008) that positive emotions contribute to inductive, upward thinking, and negative emotions - to deductive, downward thinking. R. Pekrun & E. J. Stephens emphasize that positive emotions influence creative problem solving, and negative emotions influence reproductive problem solving (Pekrun and Stephens, 2010).

In the studies of J. Michael (Michael, 2011), the possibilities of the coordinating function of emotions in the context of joint actions were analyzed.

M. S. Hannula identified three different social functions of emotions in joint problem solving: those related to the needs and goals of interpersonal relationships, those related to individual learning goals, and those related to the social coordination of individual goals (Hannula, 2015).

We asked ourselves how basic emotions affect problem solving, which is carried out in an interactive environment, when students solve problems together. We believe that: 1) gnostic emotional experiences reflecting the importance of cognitive moments of activity will act as one of the regulators of human mental activity; 2) a general emotional orientation reflecting the significance of certain emotional experiences for a person, their value and semantic representation, can act as a factor affecting the strategies for solving problems.

Materials and methods

In our study, emphasis was laid on studying the effect of emotional variables on the problem solving strategies. The emotional variables included the type of the general emotional orientation of the personality in accordance with the classification of B. I. Dodonov (Dodonov, 1978) and the characteristics of the experienced emotional states of the study participants according to K. Isard (Isard, 1991); taken together, they constitute a characteristic of the individual emotional experiences.

Eighty four students from Rostov-On-Don drew the sample. As one of the methods, an experiment based on the situation of a joint decision of mental tasks by a group of 3-4 students (they were to do puzzle) was used. The subjects were asked to put together a jigsaw puzzle within 7 minutes.

In the diagnostic part of the study, B. I. Dodonov's technique and K. Isard's questionnaire were used, which were presented to the subjects immediately after the experiment.

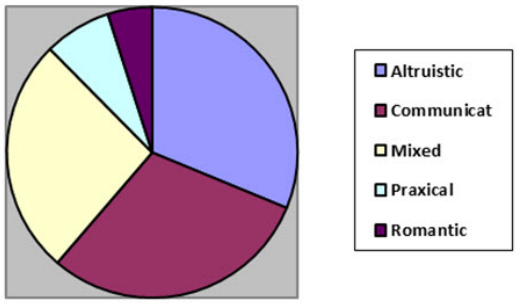
The method of B. I. Dodonov is designed to study the General emotional orientation of the individual, it is a questionnaire with a description of various emotional experiences, grouped into ten types. The task of the Respondent is to select the characteristic emotional experiences (Dermanova, 2002). Questionnaire K. Isard includes scales characterizing the experiences of basic emotions. K Isard calls ten basic emotions: anger, contempt, disgust, grief, fear, guilt, interest, joy, shame, surprise (Eliseev, 2003).

The data obtained were processed using methods of mathematical statistics: The Mann-Whitney test, Spearman correlation study (Nasledov, 2007).

Results

First of all, the analysis of the types of general emotional orientation among respondents was carried out.

Figure 1.
Types of general emotional orientation among respondents



The study has found that the primary types of general emotional orientation are altruistic (29.7%) (n = 25), communicative (28.6%) (n = 24) and mixed types. The type in the absence of pronounced dominance of certain emotional experiences (25%) (n = 21) was called mixed. Praxic (7.1%) (n = 6) and romantic (4.7%) (n = 4) types were less pronounced, but were represented in a few groups.

An output analysis of the decision process observation made it possible to identify four types of strategies for solving mental problems by students: a mosaic solution, a space restriction strategy, a strategy of successive s steps, and a chaotic solution.

The mosaic solution strategy (61%) suggested that the subjects preferred to put together individual fragments from which they further tried to form a logical design and structure of the puzzle picture. We can talk about the upward heuristic that underlies this strategy: the movement from data to the goal is seen as a movement from bottom to top, from particular ideas to general ones.

The space restriction strategy (24%) suggested that the subjects first laid out the border of the picture, and then started to fill it. In this case, it can be argued that the basis is a descending heuristic suggesting a movement from the end (goal) to the beginning (data); this is a movement from above, as a movement from a functional value, a general idea to particular hypotheses. The strategy of successive steps took place when the subjects collected the figure sequentially (5%). This is also an option to use downward heuristics. The strategy is a chaotic solution assumed that the subjects had no preferences and orientation in collecting puzzles, they used various options (10%).

The analysis of strategies for solving mental problems by the subjects with different types of general emotional orientation showed the following (Table 1): for the altruistic type, mosaic decision strategies (72%) and space restrictions (28%) are typical; for the communicative type – mosaic solutions (54%), space restrictions (29%), successive steps (4%) and chaotic solutions (12%); for the mixed type –mosaic solution (71%) and a chaotic solution (29%); for the praxic type – space limitations (100%), for the romantic type – mosaic solution (100%).

Table 1.
Strategies for solving thinking problems by students with various types of emotional orientation

General emotional orientation	Strategies for solving thinking problems			
	The mosaic solution (%)	The space re-striction (%)	The strategy of successive steps (%)	Chaotic solution (%)
Altruistic	72	28		
Hedonic			100	
Gnostic		100		
Communicative	54	29	4	12
Praxical		100		
Pugnic	100			
Romantic	100			
Mixed	71			29
Aesthetic			100	

According to K. Isard's method, all the types presented (Table 2) showed dominant emotions of interest, joy and surprise, which indicates the role of gnostic emotions in decision processes.

Table 2.
Emotional characteristics of students with various types of emotional orientation

Emotions	Type of general emotional orientation				
	Altruistic (%)	Communicative (%)	Mixed (%)	Praxical (%)	Romantic (%)
Interest	16	18	17	19	17
Joy	16	18	17	19	16
Surprise	12	13	12	13	11
Grief	11	10	11	7	7
Anger	7	7	7	5	7
Disgust	7	6	7	5	8
Contempt	7	7	9	9	10
Fear	8	7	6	6	8
Shame	8	8	7	8	11
Guilt	7	6	7	9	5

Less pronounced, but quite often arising in comparison with other emotions, was the emotion of grief. We interpreted it, in the context of a problem-solving situation, as chagrin about disability to cope with a task. Other emotions (fear, guilt, shame, contempt, disgust, anger) were expressed approximately the same.

Significant distinctions in emotional states between types with different emotional orientations were observed in the expression of negative emotions of fear, guilt, contempt, grief, and anger. There were no significant differences in the emotions of interest, joy, surprise.

Thus, we can say that gnostic emotions are dominant for the subjects, regardless of personality type or emotional orientation. Activities of solving mental problems induce the emergence of gnostic emotions (surprise, interest, joy), and these are common emotions for all participants and a common characteristic for all personality types. The results obtained indicate, firstly, the formation of common, shared among all participants, gnostic emotions of surprise, interest, joy; secondly, that the very situation of joint activities on solving mental problems leads to the generation of cognitive emotions common to all participants that are not related to their personality types.

At the same time, there are significant differences in the negative emotions associated with the problem solving situation (Table 3). The use of the Mann-Whitney criterion made it possible to detect differences in the intensity and frequency of the manifestation of emotions in students with various types of general emotional orientation.

Table 3.
The significance of differences in emotions in students with different types of emotional orientation

Groups of respondents	Types of emotions									
	Grief (F)	Grief (I)	Anger (I)	Anger (I)	Disgust (I)	Disgust (F)	Fear (F)	Shame (I)	Guilt (F)	Guilt (I)
Altruistic - Communicative	U=181,000 p = ,017	U= 91,00 p = ,028	U=204,00 p = ,045		U=191,00 p = ,026					
Altruistic - Mixed			U=155,00 p = ,014		U=174,00 p = ,045		U=171,00 p = ,031	U=161,500 p = ,023		U=148,000 p = ,009
Altruistic - Praxical	U=21,000 p = ,005	U=27,000 p = ,015	U=28,500 p = ,017	U=34,000 p = ,041	U=36,500 p = ,053	U=26,500 p = ,012				
Altruistic - Romantic		U=13,000 p = ,016								
Communicative - Mixed							U=166,000 p = ,039		U=164,000 p = ,041	U=138,500 p = ,008
Mixed - Praxical	U=22,000 p = ,015									

F* - Emotional Frequency

I* - Emotion expression intensity

Significant differences in the emotional states of respondents with different types of emotional orientation were observed in the manifestations of negative emotions of fear, guilt, disgust, grief, and anger. There are no significant differences in the emotions of interest, joy, surprise.

An analysis of the correlation relationships made it possible to detect inversely proportional correlation relationships between the effectiveness of solving problems and the intensity of emotions of grief and fear (Table 4). An analysis of the correlation relationships made it possible to detect inversely proportional correlation relationships between the effectiveness of solving problems and the intensity of emotions of grief and fear (Table 4). Among the general correlations, one can find that emotions of interest have direct correlations with emotions of joy. But these positive emotions exist independently and do not find any connections with other emotions.

Table 4.
The relationship of emotions and the effectiveness of problem solving

Types of emotions	Effectiveness	Joy (intensity)	Joy (frequency)
Grief (intensity)	-0,227*		
Fear (intensity)	-0,267*		
Interest (intensity)		0,256*	0,397**
Interest (frequency)			0,224*

A much greater interest is caused by the relationship of negative emotional experiences with the emotion of surprise (Table 5). The emotion of surprise (intensity and frequency of occurrence) is associated with direct positive relationships with emotions of grief, anger, disgust, contempt, fear, shame, guilt, each of which also has close mutual connections with each other.

Table 5.
Relationships of Emotion of Surprise with Other Emotions

Types of emotions	Grief (I)	Grief (F)	Disgust (I)	Disgust (F)	Contempt (F)	Anger (I)	Anger (F)	Fear (I)	Fear (F)	Shame (I)	Shame (F)	Guilt (I)	Guilt (F)
Surprise (I)	,509**	,424**	,394**	,234*		,330**	,249*	,354**	,273*	,354**	,258*	,452**	,298**
Surprise (F)	,442**	,661**	,283*	,387**	,260*	,241*	454**	,289**	,417**	,276*	,391**	,314**	,426**

F* - Emotional Frequency
I* - Emotion expression intensity

Discussions

Thus, it can be said that the mosaic solution strategy dominates among subjects with altruistic (72%), communicative (54%), mixed (71%) and romantic (100%) types of emotional orientation. The second in representativity is the space restriction strategy, which is subdominant in the altruistic and communicative types, and dominates in the praxic type.

The mosaic solution strategy allows us to talk about ascending heuristics: the movement from data to the goal is seen as a movement from the bottom up, from particular ideas to general ones. The space restriction strategy, in our opinion, speaks of a downward heuristic suggesting a movement from the end (goal) to the beginning (data), this is a movement from above, as a movement from a functional value, a general idea to particular hypotheses. Successive Steps Strategy - also demonstrates the use of a downward heuristic.

Thus, the ascending heuristic is predominant for respondents of all types of emotional orientation.

Analysis of the effectiveness of solving mental problems provided ranking the strategies for solving them in terms of their success: a mosaic solution strategy (48%), a space restriction strategy (35%), a successive steps strategy (31%), and a chaotic solution (27%).

In the process of solving problems, respondents of all types of emotional orientation were dominated by emotions of interest, joy, and surprise, which shows the role of gnostic emotions in decision processes (Vasiliev, et al., 1980; Izard, 1991). We see that solving problems evokes emotions that are related to cognition. The results obtained confirm the position that the emergence of emotions is associated with a specific situation of human life (Klochko and Galazhinsky, 2000; Izard, 1991).

The study showed that gnostic emotions are dominant for respondents, regardless of the type of emotional orientation. Activities to solve mental problems induce the emergence of gnostic emotions (surprise, interest, joy) - and these are common emotions for all participants and a common characteristic for all types of emotional orientation of a person. We speak general emotions based on the ideas of J. Michael (Michael, 2011). The results are consistent with the studies of R. Pekrun (Pekrun and Stephens, 2010), which distinguishes: negative activating emotions (anger, disappointment, fear, anxiety, shame) and deactivating negative emotions (boredom, hopelessness, sadness and disappointment); as well as activating positive emotions (pleasure, hope, anticipating joy, joy, pride and gratitude) and positive deactivating emotions (relaxation, anticipating relief, satisfaction and relief).

Our research has something in common with the results of M. S. Hannula (Hannula 2015), which refers to Ekman's assumptions about six basic emotions (anger, sadness, fear, disgust, happiness and surprise) (Ekman,1992). and emphasizes that these emotions occur more often among participants when solving problems together.

We believe that the results obtained, firstly, indicate the formation of common, shared among all participants of the Gnostic emotions of surprise, interest, joy; secondly, that the very situation of cooperative interaction in solving mental problems leads to the generation of gnostic emotions common to all participants that are not related to their personality types. In this connection, we consider it advisable to talk about the regulatory function of gnostic or intellectual emotions in a cooperative, joint solution of problems. In modern studies, it has been shown that, with a joint solution, general estimates are formed (Belousova, 2002; Belousova, 2010; Salmela and Nagatsu, 2016), that perform a regulatory function. The obtained results confirm the provisions on the regulation of emotions in thinking (Goldin, 2004; Klochko and Galazhinsky, 2000; Tikhomirov, 2008) and in joint activities (Belousova and Pavlova, 2013; Hannula, 2015; Michael, 2011).

An analysis of the correlation relationships showed (Table 4) that emotions of interest have direct correlation with emotions of joy, thereby proving that the emotion of interest causes the joy of cognition. The correlation relationship analysis revealed the following features. Inverse proportional correlations were found between the effectiveness of solving problems and the intensity of emotions of grief and fear. Among the general correlations, one could find out that emotions of interest have direct correlations with emotions of joy. But these positive emotions exist independently and do not have any connections with other emotions. Thus, the study shows that the emotion of interest causes the joy of cognition, which, in principle, is characteristic of interest.

The data presented in table 5 show the relationship of emotions of surprise with emotions of grief, anger, disgust, contempt, fear, shame, guilt, each of which also has close mutual relations with each other. In our opinion, negative emotions have an activating effect on puzzle solving processes, which partially correlates with the position of R. Pekrun (Pekrun and Stephens, 2010), who identified activating and deactivating negative emotions. We believe that negative emotional experiences form an emotional complex, which, associated with surprise, contribute to problem solving, the formation of certain decision strategies. The results are consistent with ideas about emotional regulation presented in I. A. Vasiliev (Vasiliev et al., 1980), V. E. Klochko (Klochko and Galazhinsky, 2000), O. K. Tikhomirov (Tikhomirov, 2008). At the same time, this complex of emotions can act as universal for people with various types of emotional orientation, which serves as an evidence of the regulatory role of emotions in human mental activity.

Conclusions

Thus, the study enables to state that:

- gnostic emotional experiences can dominate in the situation of mental activity among participants with any type of general emotional orientation, which confirms the statement on the regulatory function of gnostic emotional states in human mental activity;
- negative emotional experiences associated with surprise contribute to the development of mental activity, the formation of certain decision strategies. At the same time, this complex of emotions can act as universal for people with various types of emotional orientation, as an evidence of the regulatory role of emotions in human mental activity;

- there are distinctions in strategies for solving mental problems among participants with a different type of general emotional orientation, which, however, requires confirmation and additional research on a more representative sample.

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Conflict of interests

The authors declare no conflict of interest.

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How Do First Year University Students Use ICT in Their Leisure Time and for Learning Purposes?

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Abstract: This study advances our understanding of the current use of social media and mobile devices by first year university students. This research sought to explore the influence of the use of social networks and new mobile devices by students for learning purposes. Data were collected using a self-report questionnaire at four universities in three countries in Central Europe. The research was completed by a sample of 961 full-time first year undergraduate students. The data were analysed using descriptive statistic and confirmatory factor analysis. The findings show that students who intensively use ICT for leisure-related tasks are also experienced in ICT for learning purposes. Furthermore, the results showed differences in the use of ICTs according to four selected areas: ICT for leisure-time activities, social networking, ICT on mobile phones, and ICT for study purposes by students. Five well-differentiated clusters were identified by through cluster analysis, which we term the 'mobile subgroup', 'educational subgroup', 'social subgroup', 'network subgroup', and 'entertaining subgroup'. Educators can benefit from the results through a more complete understanding of how first year university students use social networks and mobile devices and how intensity in these areas influences ICT use for learning purposes.

Keywords: ICT competence, university students, social networks, mobile devices, leisure-time activities.

Introduction

Social networks are spreading rapidly with millions of users, especially among young people in the EU countries. Use of social networks in the educational process can be considered a potentially powerful educational tool because today's students spend much time in online networking activities practically every day. Previous research has shown that social network Sites (SNS) "support educational activities by enabling interaction, cooperation, active participation, information and resource sharing, and critical thinking" (Ajjan and Hartshorne, 2008; Areepattamannil, and Santos, 2020; Goldsmith-Pinkham and Guido, 2013; Selwyn, 2007, Mazman and Usluel, 2010). Students today demand more independence, networking, interaction, and opportunities in their learning and some of them consider Learning Management Systems a traditional and conservative learning tool (Forouzesh, and Darvish, 2012; Oureshi, Raza, and Whitty, 2015).

These days, university students are also integrating mobile devices into their learning process that provide them informal and non-formal learning contexts and encourage their orientation to immediate communication and collaboration. Integration of emerging social media, including networks, and mobile devices into existing learning practices significantly facilitates more robust educational opportunities (Harris, 2015; Mazman and Usluel, 2010; Picatoste, Pérez-Ortiz, and Ruesga-Benito, 2018; Sung, Chang, and Liu, 2016). Educators and students would benefit from a more complete understanding of the role of SNS in promoting but also hindering students' academic success (Flanigan and Babchuk, 2015; Lau, 2017, Wakefield, and Frawley, 2020). For today higher education students is important knowing how to use ICT, including social media and mobiles, to learn, communicate, share and work with ideas. "Digital competence is recognised as one of key competences for lifelong learning" (Measuring Digital Skills across the EU, 2014) and its development is an essential part of preparing young people for leisure,

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learning, work and communication in knowledge society.

The rapid development of ICT has had considerable and visible impact on current educational sector (Flanigan and Babchuk, 2015; Goodfellow, 2011; Juhaňák et al., 2019; Mazman and Usluel, 2010; Stošić and Stošić, 2015; Wu and Tsai, 2006). In the last two decades, researchers have largely explored learners' attitudes toward new media. However, comparatively few studies have investigated students' attitudes towards using the Internet for different purposes in their formal and informal learning. This especially applies to the countries of Central Europe, where the dynamic development of ICT use started later than in the Western European countries (Eger and Egerova, 2013; Klement, 2013; Tomczyk and Kopecký, 2016; Slechtova, 2015). Therefore, one of the major purposes of the present study is to assess first year university students' ICT attitudes with a special focus on the use of SNS and mobiles (smartphones for communication purpose). Our next aim is to provide a deeper understanding of how first year university students really use ICT in their daily life.

Literature review

ICT education in the Czech Republic, Poland, and Slovakia

Despite the fact that the Czech Republic, Slovakia, and Poland can be classed as relatively young EU countries, their educational systems have a long tradition. ICT education in various forms has become an obligatory part of the curriculum in all three of these countries, which joined the EU together in 2004. However, the attitudes towards ICT education are not uniform in all these countries. The new national curriculum reforms, which included competence-oriented information education in primary and secondary education, including teachers' professional development, have laid solid foundations for the use of ICT at universities as well (Kiss, 2017; Klement, 2017; Plebańska, 2017; Půžová and Marešová, 2014; Tomczyk et al., 2015). Information education tends towards the building of information and ICT literacy with special emphasis on eliminating the emergent digital divide between individuals and groups differing in access to technology (Benes et al., 2008; Digital Divide.org., 2008). In these countries, schools play a key role in delivering ICT training. Also, internet penetration of society (ICT Development index, 2017), household equipment with ICT, and experience with new media use at home (Eurostat, 2020), at work, or in leisure various activities are very important.

Social networks, mobiles, and their place in learning

SNS, consisting mostly of young users, become an informal environment which plays an key role in continuing education and in interactions and collaboration outside the school. The research findings show that for university students could be using of social networks attractive also in an academic context (Ali et al., 2017; Gikas and Grant, 2013, Wakefield and Frawley, 2020). Moreover, some researchers argue that we are only at the beginning of research on problematic and non-problematic users' behaviour on social networks (Kim and Yang, 2017; Marino et al., 2017). SNS are user-friendly technologies that allow students to view, rapidly update, analyse, produce and spread information. It is an environment that establishes spontaneous relationships and supports not only formal but also informal learning activities.

"There are now more than 3.8 billion social media users around the world, representing 49 percent of the world's total population" (weaersocial.com, 2020). Age has been found to be an important factor determining differences in the internet lifestyle. Among younger users in the EU aged 16 to 24 years) some of the most popular online activities in 2016 included participating in SNS (88%), watching videos from YouTube or Netflix (83%), and listening to music (80%) (Digital Economy and Society in the EU, 2017).

Nowadays, the most popular SNS for college students in the Visegrad countries are Facebook and Instagram (Eger et al., 2020). Approximately one-third of Facebook users are aged between 25 and 34 years and most Instagram users are between 18 - 29 years of age (Stout, 2020). The most popular social media for students at higher education is Facebook, which had more than 2.5 billion active users worldwide. Some surveys have shown positive correlations among the use of social networking sites and student involvement (Chou and Pi, 2015; Gaudreau, Miranda, and Gareau, 2014). On the other hand, some studies (e.g. Flanigan and Babchuk, 2015) warn of potential technological distractions and their influence on academic performance.

ICT self-efficacy

In general, ICT self-efficacy comprises computer and internet self-efficacy (Pagastergiou, 2010) and is defined as a personal assessment of a person's ability to use ICT (Aesaert et al., 2017); it is measured as the level or extent of her or his belief in the use of a computer and the Internet. Many studies assessing ICT competences apply measures of ICT self-efficacy to assess the students´ actual level of ICT competence (cf. Rothagi, Scherer and Hatlevik, 2016). ICT self-efficacy is a concept that originates from the construct of self-efficacy, which derives from Bandura´s Social Cognitive Theory (Bandura, 1996). ICT self-efficacy refers to students' self-confidence in solving basic and advanced tasks related to new media (ICILS, Fraillon et al., 2015) when asked how well they believe in the ability to perform ICT-related tasks (Scherer et al., 2017).

Internet self-efficacy (also SNS and mobile learning) shows the self-confidence and expectations of users in using the Internet, social media and mobile phones. It has been suggested that students with high expectations of effectiveness may be more likely to succeed in both computer and Internet related tasks (Tsai and Tsai, 2003; Wu and Tsai, 2006). Self-efficacy applies to all areas of human activity, including ICT use. In our research we combine computer self-efficacy and Internet self-sufficiency into one concept.

The relation between ICT use, self-efficacy, ICT literacy, and ICT competence

The above-mentioned information about students' ICT self-efficacy and students' ICT use and their engagement brings us to a partial conclusion. Scherer, Rohatgi and Hatlevik (2017, p. 488) argue: "Reviewing existing literature with respect to the relation between the use of ICT and students achievement in general, researchers have come to realize that there is mixed evidence...". It seems reasonable to assume that there exists a relation between students' experience and mastery of ICT use in different contexts, and students' computer and digital literacy, which students express as their self-efficacy in ICT skills (cf. Rohatgi, Scherer and Hatlevik, 2016; Siddiq, Cochyyev and Willson, 2017). It is also important to consider differences between subgroups of students when describing the use of ICT (Eger et al, 2018). Average ICT use by higher education students probably obscures "the fact that students do not equally exploit the opportunities offered by an almost complete availability of digital resources" and the opportunity to use ICT as tool for learning purpose (Scherer et al., 2017).

It should be noted that Aesaert et al., (2017) emphasise that "research indicates that bias and accuracy of self-efficacy need to be considered when studying the relationship between self-efficacy and actual performance". Thus, many research studies assessing "ICT competences use measures of ICT self-efficacy to assess students' actual level of ICT competence". Therefore, we consider a given assessment of student' answers more valid if the questions are not focused on how well they believed they could perform computer- and Internet-related tasks, but rather on how often they actually use selected computer- and Internet-related activities in their life for different purposes (cf. Juhaňák et al., 2019). Of course, we need to take into account that "successful performance is stimulated by accurate self-efficacy" (Bandura, 1986). Research by Siddiq et al., (2017) on ICT literacy has documented positive and significant correlations between students' digital competence and self-efficacy.

Computer and information literacy and digital literacy (belonging to key competences, are considered as convergent terms, in many cases synonyms) is described as students' achievements with information and communication technology in different context, as an "ability to use computers to investigate, create and communicate in order to participate effectively at home, at school, in the workplace, and in society" (Fraillon et al., 2015, 17). It also means, the ICT literacy cannot be defined primarily as the mastery of technical skills. "ICT literacy comprises the abilities to process digital information, communicate with others, and solve given problems". Digital competence is constantly being developed. The development of the information society requires the improvement of these skills (Rohatgi et al., 2016; Tomczyk and Oyelere, 2019; Arteaga et al., 2020).

"The importance of digital competence was recognised by the European Parliament and the European Council in 2006" (Measuring Digital Skills across the EU, 2014). We do not use this broad concept in conducted research, but following Rohatgi et al., 2016 conclusion that ICT literacy and digital and information literacy are "slightly different conceptualizations of being competent with ICT, we use these two terms interchangeably" in this research (cf. Rohatgi et al., 2016). Competency can be related to students' success in the performance of related tasks because a certain degree of digital literacy is a necessary prerequisite in order to use digital technology autonomously (Juhaňák et al., 2019). This paper follows Hatlevik, Gudmundsdóttir and Loi (2015) is understanding ICT "competence as the skills, knowledge, and attitudes that enable students to use digital media for participation, work, and problem

solving independently or in collaboration with others in a critical, responsible, and creative manner".

Research questions and hypothesis

On the basis of our theoretical considerations and information about education and ICT development in the three aforementioned countries, the present research is aimed at answering the following research questions:

- How do university students use ICT in their life and for learning?
- Is an overall high use of ICT across almost all areas of life typical of all university students?
- To what extent do they use computers and Internet for e-learning?

Specifically, we expect a positive impact of the level of students´ ICT self-efficacy in mobile phone and SNS use on ICT use for e-learning purpose. This assumption is in line with information about the level of ICT education and ICT literacy at secondary schools in the Czech Republic, Slovakia, Poland and the ICT development index of these countries. This argument has also been discussed on a more general level in studies and conceptual documents, and a positive association has been identified in numerous studies (e.g. Junco, 2012; Rohatgi et al., 2016; Wu and Tsai, 2006).

- Hypothesis 1: There are no significant differences in the use of mobiles and social networks among groups of first year students from the Czech Republic, Slovakia, and Poland.

Hypotheses 2 and 3 suggest that students´ use of social media and mobiles (smartphones) can play a new role in their learning process. The percentage of students who SNS is high and some studies have found "positive correlations between social networking website use and college student engagement" (Chou and Pi, 2015; Gaudreau, Miranda, and Gareau, 2014). Average ICT use by university students probably hides the fact that students do not use ICT for school and home-related tasks equally (Scherer et al., 2017). It is important to distinguishing between subgroups of students when describing their use of ICT.

- Hypothesis 2: ICT use and the level of ICT self-efficacy of first year university students is positively related to their use of ICT for learning purposes.
- Hypothesis 3: First year university students do not use ICT in their life as a homogenous group of young people, but rather there are subgroups of students characterized by their use of ICT.

Method

This research was conducted to explore university students' self-efficacy toward ICT use with a special focus on the use of social networks and mobile devices for learning (cf. Flanigan and Babchuk, 2015; Lau, 2017; Wu and Tsai, 2006). The purpose of this paper was to fill a gap in the literature by using samples of university students from three countries of Central Europe to examine the relationship between the frequency of SNS and mobile use and their participation in learning- related activities and student engagement (Junco, 2012).

Research instrument

The research was inspired by the ICILS (Fraillon et al., 2015), Eurostat (2017) Digital skills of individuals, European Commission: Survey of Schools: ICT in Education (2013), Salomon and Kolikant (2016), and Rothagi et al. (2016). The development of the instrument started with the designation of particular measurement instruments (cf. Eger et al, 2018). One important feature of the instrument is its focus on the 'doing' approach (cf. Lee, Chen and Lin, 2015). The items balance generality and specificity. For example, a general item is 'I communicate on social networks', and a specific item is 'I am sending photos from my cell phone.' For both items we use a 5-point Likert scale (never=1, always=5). In our case, the student might know how to send a photo from a cell phone, but if he/she never does it at all, he/she does not display competence in this sub-area.

The establishment of content validity was achieved by the inclusion of a panel of four experts from three countries in three roundtable discussions to decide the appropriateness of the content of items. The experts were university teachers with Ph.D. degree, ten years experience in implementation of ICT or in innovation of teaching and learning process and with experience in cooperation with high schools. A first pilot test with 10 first year university students was conducted for the purpose of checking the pilot questionnaire and ensuring that respondents had no problems understanding the questions and following all the instructions correctly. Data were collected using a self-report questionnaire in both forms (self-

administered and online forms). The questionnaire used the following four scales of students' ICT use (see Table 1 A-D) for different purposes (use of ICT for leisure-time activities, use of SNS, use of mobile phones, and use of ICT for learning purpose).

The reliability of the instrument was established by an appropriate level of internal consistency (Cronbach's alpha). The value of Cronbach's alpha for all 25 items is 0.835, which is evidence of internal consistency reliability (Nunnally and Bernstein, 1994). Therefore, the reliability of the research instrument was fully validated. The whole tool has also been evaluated through Exploratory Factor Analysis (EFA). The results are presented in Annex 1.

Sample and procedure

The convenience sample in our study was composed of students from the academic courses of four universities in three countries. A total of 961 fulltime first year undergraduate students participated from various study programmes (Business and Economics, Geography, Teacher Education). The age of the participants was from 18 to 26, and 56% were women. All the students graduated from high school and started their studies at the university. This means that they are representative of the high school graduates who successfully gained admission to university in the Czech Republic, Poland, and Slovakia in 2017. They represent the outputs of the secondary school education process in the context of society development, including ICT, in the mentioned countries. The sample of this cross-national study comprises 583 students from two Czech universities, 132 from one university in Slovakia, and 246 from one university in Poland (only complete questionnaires were used). The data were collected in October and November 2017.

Data analysis

The data analysis is done as follows. First, descriptive statistics were calculated to explore the actual use of ICT by first year university students with a focus on the use of ICT for leisure-time activities and on the use of social networks and mobile phones. Second, cluster analysis was used to was used to identify subgroups of students from the research sample (961 respondents from Czechia, Slovakia and Poland) having the same or similar measures of answers to the questionnaire items in order to assess their behaviour in relation to their ICT use.

The rho-Spearman test factor was used for measurements related to the identification of co-occurrence of indicators. In turn, a single-factor analysis of variance (ANOVA) was used to show the differences between the dependent and independent variables.

Results

Descriptive statistics

Tables 1 A – D provide the descriptive statistics of the study sample. The data obtained refer to how the first year university students in our sample use ICT in their life.

Table 1 A

Use of ICT in leisure-time activities (means, standard deviations, and percentage distribution, n = 961)

Use of ICT for leisure-time activities			Percentage distribution				
How often do you use these activities in your leisure-time?	Mean	*SD*	Never	Rarely	Some-times	Often	Always
Listening Internet radio	2.6	1.2	21.4	30.4	24.2	16.9	7.1
Watching internet TV	2.7	1.2	19.7	23.8	29.0	19.9	7.6
Playing games online	2.3	1.2	30.3	34.0	19.6	8.6	7.5
Watching videos on Internet	4.3	0.79	0.5	2.4	10.4	38.0	48.7
Using Internet banking	4.0	1.2	7.9	5.9	12.0	29.7	44.5
Buying or ordering goods or services	3.7	1.0	3.6	8.9	27.1	35.4	25.0
Selling online	2.2	1.2	35.4	31.0	16.3	8.9	8.3
Searching information about travelling	3.7	1.0	2.4	12.1	26.0	32.2	27.4

Data on students´ ICT use show that almost 87% of the students watch videos on Internet often or always and that 75% of them use Internet banking. On the other hand, they did not favour selling online or playing games online. There is a positive finding that 64% of the students did not prefer to spend their free time playing on-line games.

Table 1 B

Use of social networking (means, standard deviations, and percentage distribution, n = 961)

Use of social networking			Percentage distribution				
How often do you use Internet and networks for following activities?	Mean	*SD*	Never	Rarely	Some-times	Often	Always
Publishing messages on social networks	2.7	1.1	17.0	28.7	29.4	16.3	8.5
Using Internet streaming	1.6	0.90	63.9	22.9	8.3	3.2	1.7
Creating and editing videos for social networks	1.9	1.0	49.4	27.4	15.0	4.0	4.3
Using a file sharing service with others	2.7	1.2	19.3	28.2	28.0	15.9	8.6
Participating as a member of a study group on a social network	3.7	1.2	8.4	9.2	18.5	28.6	35.3
Using social networks for communication*	4.4	0.85	1.8	2.1	6.9	32.9	56.4

Table 1 B shows that the most common purpose for which students use social networks is networking, and our research presents the positive finding that they use social networking for learning purposes (almost 64% of the students indicated that they often or always participate in study groups on social networks).

Table 1 C

Use of mobile phones (means, standard deviations, and percentage distribution, n = 961)

Use of mobile phones			Percentage distribution				
How often do you use mobile phone and for what activities?	Means	*SD*	Never	Rarely	Sometimes	Often	Always
Using Internet on mobile phone	4.5	0.93	2.7	3.5	4.3	18.9	70.6
Sending e-mails from mobile	3.8	1.2	7.9	9.7	15.9	23.5	43.0
Sending photos from mobile	4.1	1.0	2.6	6.5	14.2	28.4	48.4
Using smartphone as a mobile hotspot	2.8	1.5	31.5	16.6	16.1	13.2	22.5
Working with tablet	2.5	1.4	34.7	22.6	17.0	12.7	13.1
Using cloud data synchronization	2.4	1.5	43.9	14.4	13.6	9.2	18.9

Table 1 C also shows an interesting distribution of responses in some items. The highest mean and positive distribution is for the item Using Internet on mobile phone (M = 4.5, SD = 0.9). It might be mentioned that 90% of students are already using smartphones. Conversely, more than half of the students do not prefer tablet work or mobile cloud use.

Table 1 D

Use of ICT for learning purposes (means, standard deviations, and percentage distributions, n = 961)

Use of ICT for learning purposes					Percentage distribution		
How often do you use computer and Internet for learning activities?	Means	*SD*	Never	Rarely	Some-times	Often	Always
Using Internet for learning purpose at home	4.2	0.75	0.6	1.4	11.9	46.8	39.3
Studying school online courses	2.2	1.2	42.7	19.0	20.0	12.4	5.9
Searching relevant sources on Internet to meet learning tasks	3.7	0.96	2.3	8.4	27.8	41.1	20.4
Using open e-learning courses (online courses) (e.g. language, IT...)	2.1	1.1	38.3	28.5	20.0	9.4	3.9
Using paid e-learning courses (online courses)	1.3	0.73	81.6	11.9	3.6	1.7	1.2

It is evident that many students also use the Internet at home for learning purposes (86%), and more than 60% of them search for relevant resources for learning tasks. On the other hand, secondary school graduates do not prefer studying through online courses and probably 40% of them have no experience in this area. The number of students who use open and paid courses on the Internet for their further development is very low.

The following data were analysed using Statistica 12. First, groups of students from each country were analysed based on the findings for the four scales of students' ICT use for different purposes. The aim was to assess correlations among the selected variables of ICT use.

Differences and similarities between the students from the Czech Republic, Slovakia, and Poland

Czech Republic

Intensity and multidimensional character of phone use is connected statistically with learning with the use of new media, social media, free-time activities carried out through new media. It is interesting that this factor has no significant influence on a number of friends in SNS. Moreover, students who use social media more intensively, have slightly more friends on that service. However, from the pedagogical point of view, also important is a dependency determining that the students more often use Internet to learn (see Table 2.1).

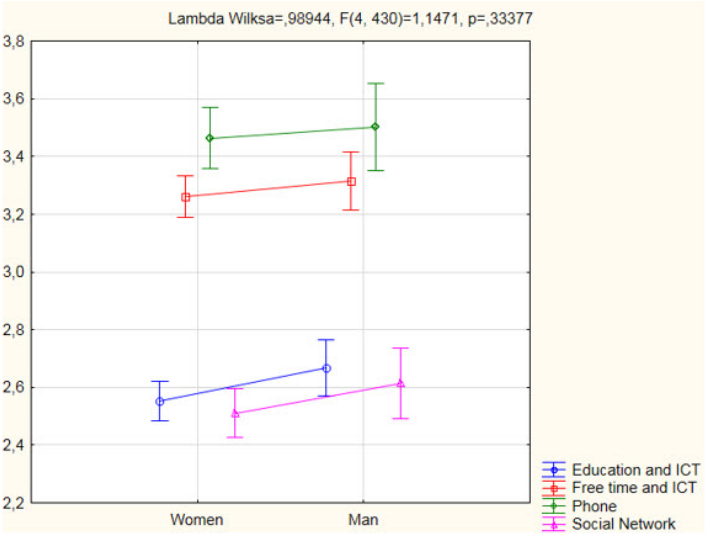
Table 2.1
Relations between variables Czech Republic

	Age	FREE TIME	Education and ICT	Mobile devices	SNS
FREE TIME	.088	1.000			
Education and ICT	.086	.304**	1.000		
Mobile devices	.005	.448**	.170**	1.000	
SNS	.021	.406**	.198**	.468**	1.000
Friends in Facebook	-.009	.055	-.070	.097	.152*

**p<0.001; *p<0.01

Moreover, it should be stressed that the sex does not conditions any of the areas listed in any way (see Fig. 1).

Figure 1.
Gender differences Czech Republic



Slovakia

On the basis of analysis of dependencies concerning the influence of experiences connected with intensity of using ICT in free time and experiences connected with education indirectly through new media, or use of mobile phones, a conclusion may be drawn that these dependencies will be identical to

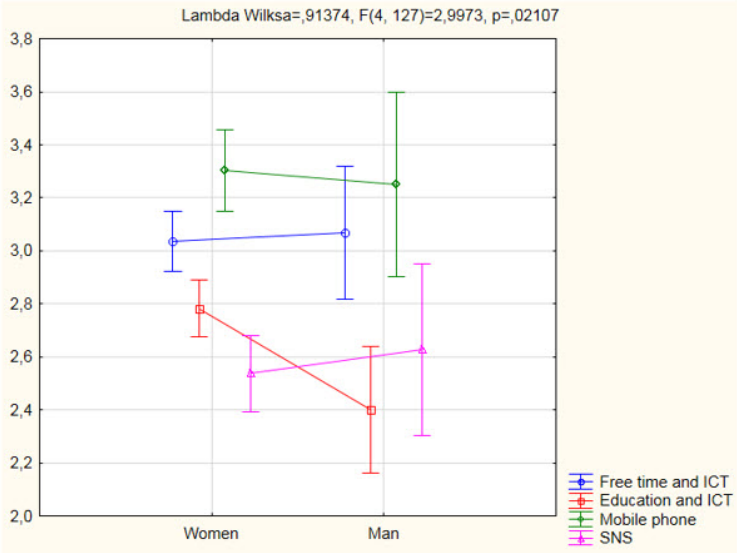
the case of Czechia. The growth of intensity of ICT use in one of areas, conditions the activity in the next one. However, this does not apply to the number of friends collected in SNS, or to the age (see table 2.3)

Table 2.3
Correlation between variables Slovakia

	Age	FREE TIME	Education and ICT	Mobile devices	SNS
FREE TIME	-.050	1.000			
Education and ICT	-.048	.419**	1.000		
Mobile devices	-.004	.441**	.244*	1.000	
SNS	-.103	.412**	.298**	.364**	1.000
Friends in Facebook	-.054	.018	.119	.038	.227*

Similarly to CZ, persons that use all listed areas of SNS more intensively declare that Facebook is a nonfriendly environment for learning and teaching F(4, 130)=14.060, p=0.001 (η^2partial = 0.097). Analysis of a way to use media according to sexes presents significant similarities between CZ and SK. Thus, there are no statistical differences. The only variable, for which the difference is visible are experiences connected with using ICT for educational purposes. In this matter, female students are slightly more experienced than male students F(1, 130)=8.264, p=0.004 (η^2partial = 0.059) (see Fig. 2).

Figure 2.
Gender differences Slovakia



Poland

Poland is not different in any way in the matter of dependencies between particular activities conditioned by ICT. Similarly to CZ and SK, the variety of applications of mobile phones, other mobile devices and SNS increases along with growing activity in learning. Unlike other countries with decreasing age, the number of friends in SNS also decreases (see table 2.5).

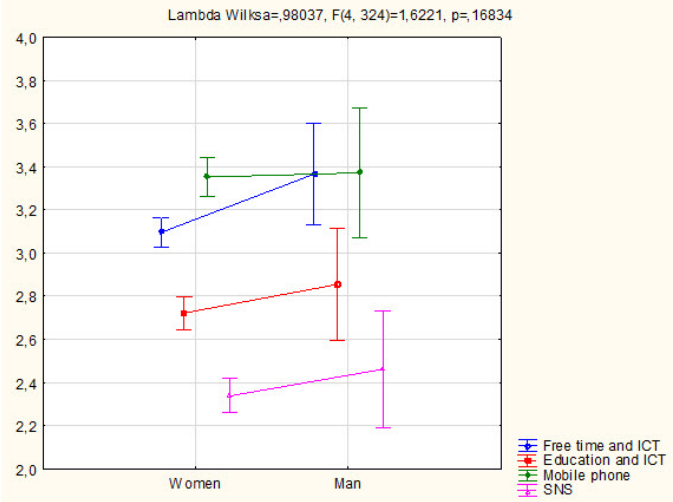
Table 2.5
Correlations between variables Poland

	Age	FREE TIME	Education and ICT	Mobile devices	SNS
FREE TIME	.207***	1.000			
Education and ICT	.2832**	.549**	1.000		
Mobile devices	.057	.538**	.425**	1.000	
SNS	.125**	.422**	.458**	.483**	1.000
Friends in Facebook	-.039	.056	.084	.040	.078

**p<0.001; *p<0.01

Males use SNS and other educational resources in the network more intensively than females, however, it is not a statistically-noticeable difference. According to ways to use phones and other mobile devices, there were no differences observed. However, among the group of Polish students, males use digital resources to plan free time more often than male students F(1, 327)=4.794, p=0.029 (η^2partial = 0.014) (see Fig. 3).

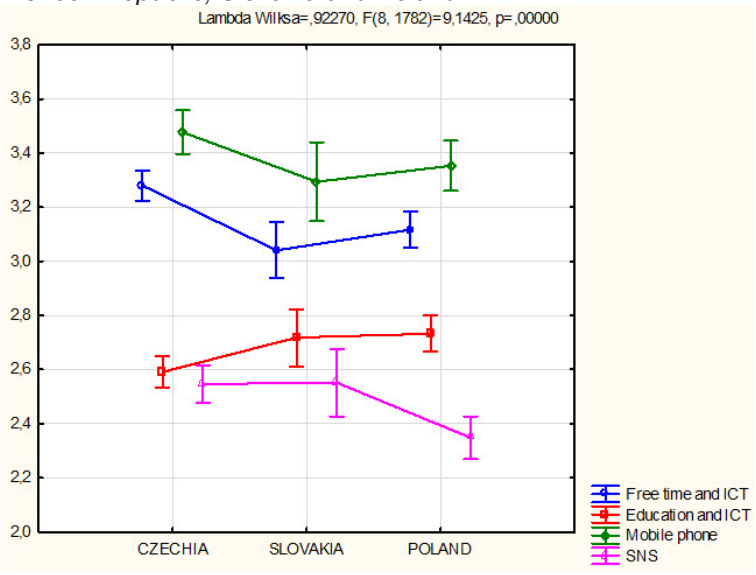
Figure 3.
Gender differences Poland



Differences and similarities between Czechia, Slovakia and Poland

The countries listed are characterized by equal tendencies in the matter of intensity of using ICT in education and mobile devices, and SNS. Along with an increase in intensity in one area, the activity in another also increases. Moreover, according to the analysis of multilinear regression model, the common key factor for educational experiences indirectly through electronic media is a way to incorporate ICT in free time. Students who use streaming channels, play online, sell and purchase online, use online banking systems or search for matters concerning travelling are experiences in the matter of education indirectly through ICT. The factor of digital competence and their use in free time, plays a significant role in creating educational spaces (see Fig. 4).

Figure 4.
Differences between Czech Republic, Slovakia and Poland



Considering the use of ICT in free time, the most active students are Czechs, and the least active are Slovakians. The difference is significant F(2, 894)=11.072, p=0.000 (η^2partial = 0.024). There were no

significant statistical differences between Poland and Slovakia in the process of learning through ICT, and Czechs students are slightly less experienced $F(2, 894)=5.5525$, $p=0.004$ (η^2partial = 0.012). However, these differences are not very visible or important in the matter of educational processes. The most active users of mobile phones are students from Czechia, however, between PL and SK, there is a slight difference $F(2, 894)=3.247$, $p=0.039$. Students from SK and CZ use SNS most intensively in comparison with PL group, that is ranked slightly lower $F(2, 659)=6.649$, $p=0.001$ (η^2partial=0.007).

The difference intensity of use of SNS presented is statistically significant $F(2, 893)=40.702$, $p=0.000$ (η^2partial = 0.017) (see Table 3).

Table 3
Numbers of friends on social networks by student group

Country	N	Friends in Facebook AVG	Friends in Facebook Std. Dev.	Friends in Facebook Std. Err	Friends in Facebook -95,00%	Friends in Facebook +95,00%
	896	442.747	473.826	15.829	411.680	473.814
CZ	329	622.307	506.588	27.929	567.364	677.250
SK	435	334.966	352.280	16.891	301.768	368.163
PL	132	350.394	593.317	51.642	248.235	452.553

Also, the difference in perception of Facebook as a tool for learning by group of students is also visible $F(2, 894)=24.058$, $p=0.000$ (η^2partial = 0.051). Students from PL have the most positive attitude towards the assumption that the environment of a popular social media may be attractive an efficient learning environment.

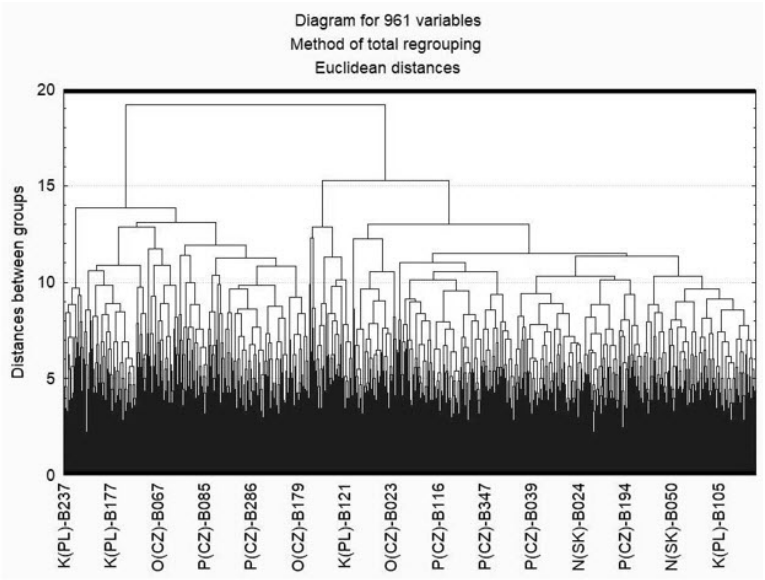
First year university students and ICT user subgroups analysis

Research assumption

The distribution of the results of student answers from the three selected countries about the use of ICT in learning and leisure can be clarified by means of five groups of factors.

The aim of this part of the study was to identify specific groups of students in the sample who have the same or closely resembling measure of response to each item in the questionnaire. Therefore, we have described their features using cluster analysis (Everitt, 2011). The cluster analysis used the results of studies on the use of ICT in leisure time, SNS, use of mobile phones and the use of ICT for research purposes, and identified homogeneous groups among first-year students in terms of ICT use.

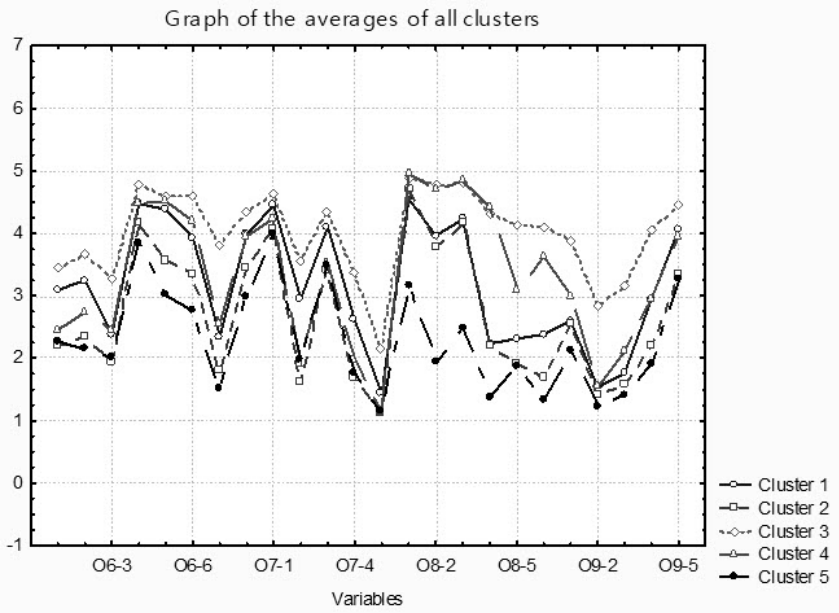
Figure 5.
Cluster analysis: Groups of students according to their use of ICT



The hierarchical clustering procedure allows a comprehensive and detailed analysis of the structure of the dataset. The distance matrix clearly indicates the similarity of individual objects or clusters. It can be seen from Figure 6 above that the students from these three countries could be divided according to the similarity of their answers to individual questionnaire items into five independent groups (a detailed description is provided in Table 5).

To show with "certainty that there is no student subgroup that explicitly rejects all activities associated with the use of ICT, the k-means clustering technique was used to identify subgroups of students" (Eger et al, 2018, Scherer et al., 2017).

Figure 6.
Cluster analysis of the assessment of the students according their ICT use



As shown in Figure 6, this assumption has been validated. The respondents, first year students from the Czech Republic, Slovakia and Poland, can be grouped into five relatively separate groups according to their own preferences. For greater comprehensiveness of the analysis these groups were described and the number of students in each of them was determined. An overview of the number of respondents belonging to the five groups is presented in Table 4.

Table 4
Number of respondents in each group according to the similarities of the questionnaire item evaluations

	Respondents *n* = 961					
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Total
Count	208	293	85	226	149	961
Count in %	21.64	30.49	8.84	23.52	15.50	100

Each group has a different intensity of the measured characteristics. This means that each group uses digital media in a different way. Some elements in particular groups may have similar intensities, but do not have the same usage styles in each area. Detailed characteristics are presented in Table 5.

Table 5
Characteristic behaviours of subgroups of students

Groups of students	Characteristic behaviour	Overall group characteristic
1 – 'Mobile subgroup'	Students use ICTs for: • using Internet on their mobile • sending/receiving messages from mobile • sending photos from mobile • using a smartphone as a mobile hotspot • cloud data synchronization	This subgroup of students prefers the use of mobile devices to perform different activities related to the general application of ICT in their life without a clear intention to learn with these technologies.
2 – 'Educational subgroup'	Students use ICTs for: • Internet at home for learning purposes • learning school online courses • searching relevant sources on the Internet to meet learning tasks • doing open online courses (IT, languages, etc.) • doing paid online courses	The subgroup of students uses ICT to fulfil learning activities at school, and they also use ICT in their informal education as a tool for further learning.
3 – 'Social subgroup'	Students use ICTs for: • posting messages to social networking sites • using Internet streaming • creating and uploading self-created videos to social websites to be shared • using a file sharing service with others	The subgroup of students clearly prefers the use of social networks to develop social contacts and to make self-presentation.
4 – 'Network subgroup'	Students use ICTs for: • Internet banking • buying or ordering goods or services • selling online • finding information about travel	The subgroup of students prefers the use of ICT to a general orientation in society, not distinguishing between using ICT for learning activities at school as well as in their informal education or for entertainment.
5 – 'Entertainment subgroup'	Students use ICTs for: • listening Internet radio • watching internet TV • playing games online • watching videos on Internet (YouTube, social networks, news…)	The subgroup of students uses ICT primarily for entertainment, with no apparent use for learning purpose or making social contacts.

Discussion

This research was aimed at examining how students integrate SNS and new mobile devices (smartphones) into their learning, thereby providing them with informal learning contexts and encouraging their orientation to almost immediate communication and collaboration. A second aim was to provide a better understanding of how first year university students really use ICT in their life for school and leisure-time-activity-related tasks. In the following we discuss our findings with respect to the three hypotheses.

The first hypothesis on the use of mobiles and social networks among groups of first year university students from the Czech Republic, Slovakia, and Poland was examined using descriptive statistics. The findings show that students who use streaming channels, play online, sell and purchase online, use online banking systems, or search online about travelling are also experienced in applications of ICT for learning purposes.

We can state that the use of ICT in students´ leisure-time activities plays a significant role in creating learning environment. This finding is in line with results by Rothagi et al., (2016) that also stress important role of the use of ICT in recreation activities.

The second hypothesis assumes that ICT use and the level of ICT self-efficacy by first year

university students is positively related to their use of ICT for learning purpose. We found the following results for the groups from the three countries. There is a slightly positive dependency between use of social networks and mobile devices and ICT use for learning purpose.

Our cluster analysis found five different subgroups of ICT users. We can associate the characteristics of only two subgroups with the use of ICT for learning purposes ('educational subgroup', 'network subgroup'). On this point, this study has generated new knowledge about the relations between application of social networks and mobile phones by university students and the use of ICT for learning purpose. This fills a gap in ICILS (Fraillon et al., 2015) that did not focus on the use of social networks and mobile phones by students.

Overall, the cluster analysis of the data supported the third hypothesis, that first year university students do not constitute a homogenous group of young people in their use of ICT in their daily lives. On the basis of the analysis it is possible to describe the characteristic behaviour of individual subgroups of students regarding their use of ICT for leisure-time activities and learning purposes. We identified five subgroups of students in the use of ICT: The 'mobile subgroup', who prefer to use mobile devices; the 'educational subgroup' of participants focused on the use of ICT for learning purposes; the 'social subgroup', with an orientation towards publishing, messaging, and sharing on social media; the 'network subgroup' which predominantly applies the Internet to internet banking, e-commerce, and searching for relevant information, e.g. for travelling; and the 'entertainment subgroup' of participants who use ICT primarily for entertainment without an emphasis on learning or social contacts. Thus, our results show strong variations in ICT competence and its applications in students´ lives. This finding is in line with the results of Hatlevik et al., (2015), Rohatgi et al., (2016), and Siddiq et al., (2017).

Conclusions and further research

The research provides an overview of selected areas of the ICT literacy of first year university students from three countries in and out of the university environment. Our results indicate that students who use ICT intensively for leisure-related tasks are also experienced in the matter of ICT applications for learning purpose. Learning with ICT is conditioned by the use of new technologies in other areas. Intense ICT use in leisure time is a dominant predictor of self-efficacy among students in the application of ICT for learning purpose. Students who use social networks intensively also find social networking a positive way to learn. The use of mobile devices to connect to the Internet is growing. Results show that 90% of the students are already using smartphones. On the other hand, first year university students (graduates of secondary schools) do not prefer studying via school online courses and roughly 40% of them have no experience in this area. Men use social networking intensively than women, though the difference is not statistically significant.

Our results showed that university students are not a homogenous group of new media users, and further suggest that the effectiveness of ICT use at university and at home depends on the current practices for which students use it and, on their ability, to integrate digital tools into their learning process and their everyday lives. The following five subgroups of students in the use of ICT were identified: the mobile subgroup, the educational subgroup, the network subgroup, the social subgroup, and the entertainment subgroup. Educators should be aware of the differences between these five user groups and take them into account when planning, including, and evaluating the educational process. The different levels of ICT competence of university students will influence their learning performance, future employment, further education, and leisure-time activities.

Also, Hatlevik et al., (2018) indicate that "ICT self-efficacy is positively related to computer and information literacy when controlled for other student characteristics and background contextual variables". For example, findings by Wakefield and Frawley (2020) "suggest the use of SNS to support learning needs to be done in a way that carefully considers how and why students engage with this part of ICT". The presented study highlights the place of social networks and mobile phones in this issue, but also draws attention to the context of three selected countries.

Theoretical and practical implications

Our discoveries are important for both scientists and professionals, because little is known about the subgroups of students differing in how they use ICT in practice. Many researchers have examined the ICT competence of young people. During the past few years, studies have been conducted primarily to investigate ICT competence focusing on software applications or on the results of teaching and learning process (e.g. Fraillon et al., 2015; Rosman and Buřita, 2014). We believe that our research conveys

important insights and presents potentially important findings related to the ICT competence of young people having a strong focus on social media and mobile use in their everyday lives.

Our results may serve as a foundation for the pedagogical application of ICT use in the teaching and learning process. It is especially important to distinguish the subgroups of students in their ICT usage. The findings provide evidence that an increase of ICT competence in one area usually influences the ability to use ICT for learning purposes as well. This study recommends that educators pay attention to how their students really use ICT in their leisure-time activities.

Limitations and further directions of research

Some limitations of the conducted research have to be considered. First, we applied the approach of Rohatgi et al., (2016), holding that ICT literacy and computer and information literacy are slightly different conceptualizations of competence in ICT, and used these terms interchangeably. Second, our findings are based on a questionnaire given to first year university students from three selected countries. In fact, it is possible that national or regional conditions in other countries would slightly change the subgroups of ICT users identified in this study. We recognize that the university setting may not be generalizable to the full population. Third, the "measurement of students' ICT-related interest and enjoyment" (Scherer et al., 2017) was not implemented in our research.

Future research can be improved by increasing the size of the sample pool and by expanding it to other countries. Future research can extend the items of our scales in accordance with the development of technology and changes in students´ behaviour, especially in the use of SNS and mobile devices.

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Conflict of interests

The authors declare no conflict of interest.

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Annex 1

Exploratory Factor Analysis

Bartlett's test		
X^2	df	p
3924.827	276.000	< .001

Chi-squared Test			
	Value	df	p
Model	315.631	147	< .001

Factor Loadings

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Uniqueness
Listening Internet radio						0.507	0.759
Watching internet TV						0.651	0.618
Playing games online						0.467	0.705
Watching videos on Internet							0.716
Using Internet banking			0.539				0.696
Buying or ordering goods or services			0.890				0.284
Selling online			0.540				0.639
Searching information about travelling							0.724
Using Internet for learning purpose at home					0.663		0.544
Studying school online courses				0.450			0.747
Searching relevant sources on Internet to meet learning tasks					0.505		0.703
Using open e-learning courses (online courses) (e.g. language, IT...)				0.666			0.528
Using paid e-learning courses (online courses)				0.661			0.547
Using Internet on mobile phone	0.780						0.482
Sending e-mails from mobile	0.797						0.394
Sending photos from mobile	0.887						0.299
Using smartphone as a mobile hotspot	0.560						0.536
Working with tablet							0.790
Using cloud data synchronization							0.698
Publishing messages on social networks		0.708					0.577
Using Internet streaming		0.470					0.668
Creating and editing videos for social networks		0.905					0.394
Using a file sharing service with others		0.582					0.590
Participating as a member of a study group on a social network							0.807

Note. Applied rotation method is promax.

Factor Characteristics

	Sums. Loadings	Proportion var.	Cumulative
Factor 1	2.457	0.102	0.102
Factor 2	1.879	0.078	0.181
Factor 3	1.687	0.070	0.251
Factor 4	1.370	0.057	0.308
Factor 5	1.190	0.050	0.358
Factor 6	0.971	0.040	0.398

Additional fit indices			
RMSEA	**RMSEA 90% confidence**	**TLI**	**BIC**
0.042	0.035 - 0.048	0.913	-639.173

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Identification of Markers for Models of Meaning Constructs

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Abstract: Strategies of meaning formation are included in the highest level of regulation of an individual life. The article presents the results of empirical determination of the polar meaning strategies marker. In the initial modeling of the meaning formation processes, two polar strategies are proposed: adaptive and developmental. The system of personal meanings occupies a central place in the structure of the personality and is correlated with its properties manifested in interactions. For an empirical description of polar strategies, we developed nine scales of personality properties according to the type of private semantic differential. In these bipolar semantic scales, we used words that denote personality traits that act as indicators of meaning. An empirical study was carried out with the use of various techniques for studying semantic regulation of a person to determine a marker that allows one to identify these meaning strategies. The battery of tests included: the author's private semantic differential, including nine scales of personality properties, "Test of life-sense orientations" (by D. A. Leontiev), test "Who Am I?" (by M. Kuhn), "Multiple intelligence test" (by G. Gardner), "Test of frustration tolerance" (by S. Rosenzweig), "Questionnaire of personality reflection" (by I. A. Stetsenko). An empirical sample (n = 145) found that a stable positive statistically significant correlation ($p \leq .05$) exists only between the indicators of nine developed scales of personal properties and the indicator "Meaningfulness of life" in the "Test of life-sense orientations" by D.A. Leontiev. This indicator "Meaning-fulness of life" can be used as an indicator marker of polar strategies of meaning formation: adaptive and developmental. Its use contributes to a more effective study of the processes of meaning formation and reduces the laboriousness of diagnostic procedures.

Keywords: meaning, semantic construct, meaning-building strategy, personality trait, semantic scale.

Introduction

Personal meanings as cognitive constructs are the basis of the content of the personality meaning sphere. Personal meanings are involved in the meaning regulation of human activity at the highest cognitive level (Asmolov, 2016; Frankl, 1990). Only a category of meaning allows one to operate with different meanings of phenomena and to organize them in more general contexts of the ongoing processes of life. The category of meaning, speaking mainly as the subject of Russian psychological research, is more capacious than the category of sense, which is studied more in European and American science. Under the influence of personal meanings a hierarchical restructuring of the system of motives and values takes place (Abakumova, 2014; Vasilyuk, 2016). The value-motivational sphere is involved in the formation and updating of strategies for the meanings formation and their subsequent implementation in activity (Bratus, 2014; Vasyukova, 2009). It is known that the processes of the meanings formation are considered in terms of their generation and flow from peripheral areas in the field of generalized meanings as "infusion of meanings" (Leontiev, 2014).

At the same time, the processes of actualization of meaning constructs having an estimated nature with its inherent polarity are studied fragmentarily and require a more complete description and modeling. The polarity of the processes of meaning formation is due to the possibility of joining or not joining perceived meanings into existing stable meaning constructs. In the process of evaluation and meaning choice, a multidirectional process takes place - acceptance or non-acceptance of perceived meanings. The attachment of meanings as a semantic addition occurs upon the appearance of meaning consonance (coincidence) between the perceived and existing meaning content. Non-attachment of meanings as semantic ignorance appears when meaning dissonance (mismatch) occurs between the perceived and

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existing meaning content (Abakumova et all., 2016). The first, adaptive strategy of meaning formation is a method of organizing the meaning sphere based on the stereotypical predetermination of goals, aimed at compensating the developmental shortcomings of the individual by adjusting and uniform movement in the layer of already acquired personal meanings under the influence of the external environment, perceived as dominant and determining its vital activity. The second, developmental strategy of meaning formation is a method of transforming the meaning sphere oriented to the recognition of motives and the generation of urgent goals, aimed at the formation of promising meanings and the timely restructuring of their content to realize the possibility of personal growth under the influence of external factors, assessed as surmountable living conditions during self-determination by an individual of his activity (Abakumova, Godunov, 2017).

The possibility of establishing specific markers that indicate the first or second strategies for the meanings formation makes it possible to increase the efficiency of modeling the development of the semantic sphere, which reflects the ways of personality development. It also allows to reduce the laboriousness of conducting psychological testing when revealing a semantic personal profile of respondents.

The purpose of the article is to present the results of empirical identification of indicators-markers of polar meaning strategies - adaptive and developmental.

Materials and methods

The aim of the study is to identify markers of adaptive and developing strategies for the meaning formation. Research hypothesis: the level of meaningfulness of life is higher among people with a developing strategy of meaning formation than among people with an adaptive strategy. In the three-level structure of personality, in addition to the worldview core and the external expressive-instrumental shell, there is a value-semantic sphere as a middle level containing personal meanings (Leontiev, 1997). Namely personal meanings make up the quality and content of human relations both in the internal and in the external world. The design and actualization of personal meanings occurs under the influence of individual experience, emotional experiences and assessments, cognitive attitudes, behavioral patterns, developmental circumstances and conditions of situational interactions. When identifying and evaluating the features of semantic-forming strategies, one should pay attention to the fact that the system of personal meanings is in a certain correspondence with personal properties that are manifested in situational interactions.

Such a mutual correspondence means, on the one hand, that personality traits express only those personal meanings that are really contained in the value-meaning sphere and the worldview core of a person. On the other hand, under the influence of existing personal meanings, the features of interactions and situational relations are formed. It is manifested by the corresponding personality properties as distinctive signs. Therefore, personal meanings act as prototypes, and personal properties as their corresponding images, that is, derivatives of meanings. This mutual correspondence between personal meanings and personality traits shows its integrity and identity (Abakumova et all., 2016).

Using various scales of personality traits allows to establish the features of their manifestation in various areas of personality interactions. According to M. Rokich, the value-semantic sphere regulates the choice of goals and means of activity in accordance to generalized ideas of the person about the possible benefits and ways to achieve them (Voronova, 2017). At the same time, personal meanings act as life values and actualize the corresponding strategies for personality development. The realization of the value-meaning potential of an individual occurs in three main areas (Dyakov, 2015; Kotlyakov, 2013): worldview, behavioral, and cognitive.

For each of these areas, one should have a description in the language of personal properties through bipolar semantic scales. Their structure is expressed by a dipole with two attractors and intermediate meanings passing through the neutral level. The personality traits in such scales are key denotations, that is, special labels as indicators of meaning. Based on previous studies, we have selected nine scales of personality traits (Godunov, 2014), which reflect a correspondingly developmental and adaptive strategy of meaning formation.

In each scale, the three upper words reflect the developmental strategy of meaning formation (+), the middle level shows the neutral state (0), and the three lower words reflect the adaptive strategy (-) (Godunov, 2014). These words, as personality traits, in semantic scales have a semantic connection with the corresponding directions of the study of meanings (Table 1).

The formed set of personal properties scales, according to the type of private semantic differential, shows the personality profile and reflects the features of the actual strategies of meaning-formation.

In order to identify marker indicators that can be used to diagnose the proposed two polar strategies of

meaning formation, we used some well-known and approved methods for studying the meaning features of personality development.

Table 1
Personal Property Scales

1) world outlook direction:	2) behavioral direction:	3) verbal-linguistic:
+3 self-sufficiency	+3 tranquility	+3 eloquence
+2 meaningfulness	+2 civility	+2 erudition
+1 responsibility	+1 leniency	+1 originality
0 disinterest	0 indifference	0 conventionality
-1 levity	-1 bravado	-1 narrowness
-2 inadvertence	-2 impatience	-2 categoricity
-3 disorganization	-3 inadequacy	-3 stereotype
4) logical-mathematical direction:	5) visual-spatial direction:	6) motor-leading direction:
+3 abstractiveness	+3 imagery	+3 vitality
+2 systemacy	+2 expressiveness	+2 plasticity
+1 logicality	+1 accuracy	+1 mobility
0 linearity	0 mediocrity	0 ordinariness
-1 inconsistency	-1 disorder	-1 mismatch;
-2 fragmentariness	-2 disunity	-2 sluggishness
-3 banality	-3 disproportion	-3 passivity
7) musical and rhythmic direction:	8) interpersonal direction:	9) intrapersonal direction:
+3 rhythmicity	+3 sociability	+3 confidence
+2 musicality	+2 trustfulness	+2 calmness
+1 proportion	+1 benevolence	+1 attentiveness
0 mediocrity	0 lack of interest	0 unpretentiousness
-1 narrowness	-1 hesitation	-1 emotionality
-2 obsession	-2 distrustfulness	-2 irritability
-3 monotony	-3 isolation	-3 suspiciousness

Among them were included: “Test of lifesense orientations” (by D. A. Leontiev) (Biktina, 2019), test “Who Am I?” (by M. Kuhn) (Tkhostov, Rasskazova, Emelin, 2014), “Multiple intelligence test” (by G. Gardner) (Gardner, 1983), “Frustration tolerance test” (by S. Rosenzweig) (Vinogradova, Ryzhov, 2012), “Questionnaire of personality reflection” (by I. A. Stetsenko) (Stetsenko, 1998). The combination of these techniques, together with the proposed particular semantic differential of personal properties (Table 1), made up the general battery of tests. With their help, a sample with a total number of 145 people was empirically investigated. Th e following graduation was performed in the sample - by age: 102 people of young age 18-23 years old and 43 people of middle age 26-56 years old; by gender: 112 women and 33 men; by professional sign: 80 psychology students, 30 historian students and 35 school teachers. To compare the empirical distributions of gradations of features in the samples, it is correct to use the Pearson criterion, suitable for samples of volume $n \geq 30$ (Morozova, Nasledov, 2010).

Results

The Pearson pair correlation coefficients calculated from (Morozova, Nasledov, 2010) showed the following empirical results. A stable positive statistically significant correlation ($p \leq .05$) was found only between the indicator “Meaningfulness of life” of the “Test of life-sense orientations” (by D. A. Leontiev) and the indicators of nine developed scales of private semantic differential of personal properties (table 1). No statistically significant correlation of these scales with indicators of other tests was found. The data of identified statistically significant correlation coefficients are presented in table. 2.

Table 2

The empirical value of the Pearson correlation coefficients is r_{emp} (with a statistical significance level of $p \leq .05$) between the average values of the scales of the partial semantic differential of the personality's polar properties and the meaningfulness of life test by D. A. Leontiev

The scale of the partial semantic differential of the polar properties of personality	The value of the empirical Pearson correlation coefficient r_{emp} (in parentheses is the critical correlation coefficient r_{cr} for the corresponding volume of the empirical sample (n), person)						
	By age		By gender		By professional orientation		
	Young age 18-23 лет (r_{cr} =0,197 for n=102)	Middle age 26-56 лет (r_{cr} =0,301 for n=43)	Female (r_{cr} =0,187 for n=112)	Male (r_{cr} =0,344 for n=33)	Students of Psychology faculties (r_{cr} =0,22 for n=80)	Students of History faculties (r_{cr} =0,364 for n=30)	School teachers (r_{cr} =0,344 for n=35)
1) world outlook direction	0,322	0,341	0,352	0,373	0,355	0,384	0,369
2) behavioral direction	0,259	0,327	0,321	0,35	0,337	0,369	0,354
3) verbal-linguistic	0,227	0,328	0,195	0,466	0,278	0,425	0,359
4) logical-mathematical direction	0,203	0,309	0,189	0,362	0,258	0,402	0,436
5) visual-spatial direction	0,221	0,571	0,298	0,365	0,227	0,457	0,578
6) motor-leading direction	0,387	0,397	0,401	0,358	0,381	0,373	0,413
7) musical and rhythmic direction	0,454	0,408	0,449	0,449	0,401	0,636	0,399
8) interpersonal direction	0,409	0,319	0,38	0,526	0,369	0,534	0,38
9) intrapersonal direction	0,313	0,507	0,341	0,513	0,356	0,375	0,683

Based on the data in Table 2, we will consider the indicator "Meaningfulness of life" in the "Test of life-sense orientations" (by D. A. Leontiev), the main indicator marker of the studied polar strategies of sense formation.

Discussions

In the course of the experimental study of the private semantic differential of the personality traits' polar scales, we established a statistically significant positive correlation between the proposed nine scales and "Meaningfulness of life" in the "Test of life-sense orientations" (by D. A. Leontiev). If the respondent has a higher level of this indicator than the average value for the sample (taking into account the standard deviation), then the indicators of his personality characteristics scales are positive (Table 1), which corresponds to a developing meaning formation strategy. If the "meaningfulness of life" indicator was lower than the average value for the sample (taking into account the standard deviation), then the indicators of its personality characteristics scales are negative (Table 1), which corresponds to an meaning formation strategy. If this indicator is at the average level for the sample, then such a respondent is "between the poles" and has an intermediate strategy. This is due to unformed methods of updating personal meanings or the presence of a transitional form of meaning initiations in a situational order.

This is natural, since this indicator reflects the conscious self-reflection of a person in relation to his life. This circumstance is due to the successful methodological construction of the "Meaningful Life Orientations" test, in which test questions are selected and formulated in such a way that they appear to be fully conscious, concrete and clear to the perception of the respondent's consciousness. M. Kuhn test "Who Am I?" describes the perception of role-based identity, which may not always reflect attitudes toward other people. In the Gardner's multiple intelligence test, various types of intellectual abilities are identified. The logical-verbal type methodology inherent in traditional test questionnaires is not completely suitable for the assesment these types of intellectual abilities. The test of frustration tolerance by S. Rosenzweig allows us to predict the emotional reaction to interference when achieving goals, but does not give an idea about the structure of personal meanings. When answering the questions of the test-questionnaire of personal reflection by I.A. Stetsenko, the respondent accepts that something is happening to him, but

he can't explain it meaningfully, since self-reflection is a more general attitude towards oneself than the meaningfulness of life, which is more specific and conscious.

Conclusions

The use of the "Meaningfulness of life" of the "Test of life-sense orientations" (by D. A. Leontiev) as a marker is possible when revealing a developmental or adaptive strategy of meaning-formation. For example, if the average level of the "Meaningfulness of life" marker is revealed in the sample, then for a particular respondent:

- if the indicator of his individual marker "Meaningfulness of life" is higher than the average value in the sample (taking into account the standard deviation), this corresponds to a developmental strategy of meaning formation;
- if the indicator of his individual marker "Meaningfulness of life" is lower than the average value in the sample (taking into account the standard deviation), this corresponds to an adaptive strategy of meaning formation.

Thus, to determine the actual polar strategy of sense formation (adaptive or developmental), we empirically identified a marker - the indicator "Meaningfulness of life" in the "Test of life-sense orientations" (by D. A. Leontiev). This helps to study the processes of meaning formation more efficiently and reduces the complexity of the relevant psychological testing procedures. This helps to carry out research on the processes of meaning formation more effectively, reduces the complexity of the relevant psychological testing procedures and does not require a large battery of tests.

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Conflict of interests

The authors declare no conflict of interest.

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Economic Implications of Education in Southeast Europe

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Abstract: This research covers an evaluation of the impact of education system, educational, scientific and other institutions on the economic growth in nine countries of Southeast Europe (SEE). The main hypothesis is the following: GDP pc growth is significant and positively correlates with the indicators of the state of education system. In addition to educational institutions, there are other social and economic indicators on which education and science depend, namely the budget and fiscal system, corruption and protection of intellectual property rights, which also have positive and significant impact on GDP pc. The stated fields are interactive. Besides GDP pc, the analysis includes another 11 variables. Factor analysis for the variables grouped into two factors shows high significance. The F-test result shows significance of the regression model. ANOVA test, too, confirms the aforementioned significance. Both variables (the first and second factor) have positive direction with GDP pc. The results show significance of the institutional-educational variable, while the impact of educational population in the model is not sufficiently significant. Econometric analysis has mainly confirmed the initial hypotheses.

Keywords: Education system, institutions, budget, Southeast Europe, Economic growth, GDP.

Introduction

In theory, numerous factors affect the economic growth rate. This can be seen from the production function Y = f (Tp, C, L), where Y – GDP value, Tp – technological progress, C – capital, and L – labour. The impact of education, science, technological development, research and innovations on GDP growth is sublimated into technological progress. And vice versa, the stated fields affect technological progress through knowledge accumulation, as well as GDP growth as a consequence of growth in labour and equipment (capital) productivity. The era of globalization is accompanied by an intensive economic development, which has become some kind of social paradigm. Modern definitions and new developmental approaches are stressing multidisciplinary approach all the more, because together with the nominal GDP growth (aggregate or pc), there occur in the observed period social, structural and technological changes. Today, economic development also has to meet the requirement of sustainability, which most often involves ecological, energetic and other natural factors and norms. The phrase "sustainable development" represents to many people concern for the environment, even though the concept of sustainability is much more complex. It is not difficult to notice that there are more and more requests for smart, inclusive and sustainable growth, which assumes that GDP growth (Y) is occurring in a good (humane) social environment. And such an environment can only be realised by countries with developed institutions, including the policy of the entire education system. For example, the determinant "smart" is characterised by the processes of acquisition of new knowledge, even at lower educational levels, then studying, lifelong learning and other. EU member states have adopted the Europe 2020 strategy, through which they are applying the policy and standards of smart, sustainable and inclusive development.

Thus, smart growth is a privilege of those countries that have developed education systems (David, Goldin and Katz, 2020; Hanushek and Woessmann, 2020a) and which invest in research, development and innovations (Visvizi, Lytras and Daniela, 2018; Hanushek, 2016). Likewise, inclusive growth depends on the quality and quantity of the education system, especially in primary, secondary and tertiary education. Kochetkov, Larionova and Vukovic (2017) argue that role of the university does not simply conduct R&D for business but creates essentially new industries and becomes the main actor

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of the economy. Prerequisites for smart and inclusive growth can be realised if there are developed and quality institutions in the field of education (Lilles and Rõigas, 2017; Nistor, Mera and Pop Silaghi, 2018). Therefore, the stated social systems are an important factor for economic growth, in particular the state of their development and organization, as well as social awareness. Hence, researching the impact of non-economic factors on GDP growth is particularly important, not only for developed, but also for developing countries.

It is beyond dispute that the Southeast Europe countries find themselves on an economically and geographically unique territory. Regardless of the differences, most of them are undergoing important phases of economic and entire social development. It is here that the transitional processes, reforms, as well as resolution of the consequences of the world crisis 2008/2009 are of notable importance. Thereby, global economic order imposes the strictest norms in the area of competitiveness, export, ICT development and other (Milićević and Petrović, 2018; Petrović, Milićević and Djeri, 2017). It is important to note here that the regional countries are still facing "post-transitional" syndrome of insufficient growth rates. There arises a justified question: How can countries realise long-term GDP growth of minimally 4 to 6%, creating conditions for larger investments in education system, scientific research, reforms and institution stabilisation?

The subject of this research is to determine the connection between education system, that is, educational, scientific and other institutions and economic growth, i.e. to determine their impact on GDP pc growth rate. The observed region is homogenous in terms of relevant indicators, economic and commercial, knowledge, culture and tradition. The analysis includes the following countries: Bulgaria, Romania, Croatia, Serbia, Bosnia and Herzegovina, Montenegro, Albania, Slovenia and Greece.

It is widely known that education, scientific research and technological progress affect the economic development and social welfare of post-transitional countries (Vuković et al., 2015; Popović et al., 2019). Even though the majority of the Southeast Europe countries have completed reforms of their education systems, developed and strengthened institutions (including educational institutions), harmonized policies and legislation with the EU, there are no visible effects on GDP pc growth yet. Besides that, the region is still trailing in EU's wake, despite the fact that assets are also invested for different purposes in research and education in the countries that find themselves in pre-accession stages (Popović and Erić, 2018). The European Union is helping to modernise public institutions, including various levels of education, as well as research and development. Together with the member states and candidates for membership, it is making efforts to modernise the education system, introduce modern methods and contents into the teaching process, as well as to optimise the duration of education process.

The complex character of economic growth and its interdependence with numerous factors have already been emphasised. Furthermore, many of them „overlap". Education system, science and research depend to a great extent on the economic and institutional strength of a society, whereby the so-called other institutions that impact the balance between the budget and fiscal system (by stabilising debt and budget), as well as institutions for the protection of intellectual property rights, have a key role in this. And finally, it is important to reduce corruption, because this is one of the requirements for more efficient work of the institutions and faster welfare growth of this Euro-region.

Thus, the main hypothesis is that GDP pc growth stands in positive correlation with quantitative and qualitative indicators of the state of education system for the whole region of the Southeast Europe. In other words, their impact on economic growth is significant and positive. The results depend on institutions and policies for the creation and planning of education system development, as well as on the scientific-research base (Saviotti, Pyka and Jun, 2016; Astakhova et al., 2016). In addition to educational institutions, there are other social and economic indicators, on which the fields of education and science depend, that are important too; namely the following: the state of budget and fiscal system, corruption and intellectual property rights protection. What is in question are fields with strong interaction. The second aim of the research is to prove the hypotheses that these factors, too, have positive correlation with GDP pc growth, and that the connection between the observed variables is significant. It turned out that the developed economies or the economies of the developing countries have more efficient systems of education, science and research. The same holds for the economic welfare, which is inconceivable without continuous accumulation of knowledge arising from the education and scientific system (Benos, 2010).

Today, economic progress depends on the educational and scientific base, as well as on the synergic effect of the majority of institutions and numerous other factors (Hanushek and Woessmann, 2020b). Economic progress traditionally depends on the factors of available labour and capital, but also on the technological progress. It seems that this last factor is becoming all the more important, i.e. key for faster economic growth. The global market sees faster changes, dictated by new technological as well as

organizational discoveries. Digitalisation sets the standards in all the social spheres. In terms of sectors, the following are all the more important: technological readiness, adoption of cutting-edge technologies, especially in IT, robotics, biotechnologies, microelectronics, new materials, etc.

With the aim of checking the hypotheses, the following variables have been used in the analysis, besides GDP pc: School Population Primary Education, School Population Secondary Education, School Population Tertiary Education, Critical Thinking in Teaching, Mean Years of Schooling, School Life Expectancy, Budget Transparency, Incidence of Corruption, Property Rights, Intellectual Property Protection and Debt Dynamics. The research makes use of various methods, with the econometric methods being the primary ones.

Materials and methods

Representative sample in the analysis comprises the Southeast Europe countries (the term being used in geographical sense). It is about the region that includes the following countries: Bulgaria, Romania, Croatia, Serbia, Bosnia and Herzegovina, Macedonia, Montenegro and Albania, whereby certain authors include Slovenia as well (Tache et al., 2017; Simionescu et al., 2016; Gouveia and Santos, 2018). But this research does not include Northern Macedonia, due to the lack of data in the World Economic Forum (WEF) Competitiveness Report for 2019. However, the sample includes Greece, as a country which has traditionally close economic, cultural, scientific and educational relations with the observed region. What stands out in particular is cooperation in the field of scientific research and similarity of education systems. Besides Greece, all the countries that are the subject of this research have undergone the process of transition from socialist to democratic-market systems. They are characterised by similar social circumstances and certain economic differences. All the countries are EU member states or are strategically determined for euro integrations and the European path towards democracy and market. Differences exist in the degree of EU integration (membership candidates and potential candidates, members of EU and monetary union).

The research is based on 12 variables that are presented in Table 1.

Table 1
Data for the analysis of observed phenomena

Country	*X_1	*X_2	*X_3	*X_4	*X_5	*X_6
ALB	10,2	15,2	4,6	164	310	239
B&H	9,7	14,3	2,5	N/A	N/A	N/A
BGR	11,8	14,8	3,5	276	488	374
CRO	11,2	15,0	2,3	170	357	240
GRC	10,3	17,9	2,7	687	661	561
MNE	11,2	15,0	3,6	39	65	43
SRB	11,1	14,8	3,6	270	567	404
SVN	12,3	17,4	4,8	120	129	104
ROU	11,0	14,3	2,7	1049	1704	1114
Country	*X_7	*X_8	*X_9	*X_{10}	*X_{11}	*X_{12}
ALB	50	36	3,3	3,1	40	5,3
B&H	35	38	3,3	2,9	50	5,6
BGR	66	42	3,9	3,7	80	9,3
CRO	57	48	3,8	3,8	80	14,8
GRC	53	45	4,0	4,0	50	20,4
MNE	54	45	4,3	3,9	40	8,6
SRB	43	39	3,9	3,7	50	7,2
SVN	69	60	4,6	4,8	100	26,2
ROU	75	47	4,6	4,7	79	12,3

*X1 - Mean years of schooling, X2 -School life expectancy years, X3 -Critical thinking in teaching, X4 -School Population primary education in thousands, X5 -School Population secundary education in thousands, X6 -School Population Tercial Education in thousands, X7 -Budget transparency, X8 -Incidence of corruption, X9 -Property rights, X10 -Intellectual property protection, X11 -Debt dynamics, X12 -GDP per capita thousands.

Sources of data in Table 1 are the last available Global Competitiveness Report of the World Economic Forum (X1, X2, X3, X7¸ X8¸ X9¸ X10, X11) as well as the World Bank Development Indicators Report (X4, X5, X6, X12). It can be concluded on the basis of Table 1 that the values of indicators (variables) of all the countries are relatively homogenous in most cases. As for BiH, there is a lack of data on school population, but the statistical techniques allowed (e.g. region averages attributed to the stated variables) make value approximations possible.

In order to test the set hypotheses, this paper makes use of several statistical-econometric techniques. One such technique is the Principal Component Analysis (PCA method). Calculation of the main components provides predictor variables by means of which the level of impact on the dependent variable, GDP per capita, is determined. In the analysis, the dependent variable, GDP per capita, is actually the proxy variable of the Southeast Europe economic development.

Multivariate factor analysis used is a set of statistical and mathematical procedures which can be utilized to determine the dependence between the observed phenomena (variables). It is important to note here that growth in the number of variables causes greater need for knowing their structure and interrelations. This paper makes use of the PCA technique based on variances, whereby the problem dimension is reduced, and maximum possible variability is kept. The initial variables are transformed into linear combinations of the original variables, in order to include an all the greater part of the variance of the original variable set (Vidal et al., 2016).

Factor analysis is conducted in four steps: evaluation of the justification of factor analysis, extraction, factor rotation and calculation of factorial scores. In principle, this analysis is the technique of decreasing the amount of data by reducing the original set of variables onto a set of small number of factors, whereby another, not directly perceptible dimension is identified. This smaller number of variables makes interpretation of results easier. Variants (components) are formed to maximise the whole set of variables, not to predict the dependent variable (variables). Stock and Watson (1998, 2002) have researched factor analysis and estimates of macroeconomic variables.

The form of the factor analysis equation reminds one of multiple linear regression that is used in the second part of the analysis:

$$X_i = A_{i1}F_1 + A_{i2}F_2 + A_{i3}F_3 + \ldots + A_{im}F_m + V_iU_i$$

where:
- i-standardised variable,
- standardised coefficient of multiple regression of variable “i” to joint factor “j”,
- joint factor “j”,
- standardised regression coefficient of variable “i” to “unique” factor “i”,
- “unique” factor for the variable “i”,
- number of joint factors.

Each variable is a linear combination of extracted factors ( ), and part of the “unique” for each variable ( ).

Joint factors can be expressed as linear combinations of the observed variables, that is:

$$F_i = W_{i1}X_1 + W_{i2}X_2 + W_{i3}X_3 + \ldots + W_{ik}X_k$$

where:
- estimation of i-factor,
- weight or factor “score” coefficient,
- number of variables.

Such analyses are mainly used to determine whether independent variables explain significant part of the variability of dependent variables, that is, to determine the part of variability of the dependent variable, explained in terms of one or more independent variables.

Software solutions increase the efficiency of factor models. This paper uses the software application SPSS, Version 26.

Results

The following table presents descriptive statistics; there exists significant standard deviation from the average in the data related to the school population at all three levels of education. This, at the same time, is a logical indicator, because the countries have varying populations (Montenegro minimum, Romania maximum in the sample). Analysis of other variables in the table of descriptive statistics does not show marked deviations.

Table 2
Descriptive Statistics

	Mean	Std. Dev.[a]	Analysis N[a]
School Pop., Primary Educ., thousands	.33	.33	9
School Pop., Secondary Educ., thousands	.51	.48	9
School Pop, Terciary Educ., thousands	.37	.32	9
Mean years of schooling	11	.81	9
School life expectancy years	15.41	1.31	9
Critical thinking in teaching	3.37	.90	9
Budget transparency	55.78	12.7	9
Incidence of corruption	44.44	7.16	9
Property rights	3.97	.48	9
Intellectual property protection	3.84	.63	9
Debt dynamics	63.26	21.73	9

The following table shows the degree of explanation of the variance of the analysed variables grouped into two components (factors). The first component (factor) explains 45,46% of the fluctuations of all the variables, and the second one explains 32.3%, which is statistically highly significant and satisfies the conditions for continuing the analysis, as cumulatively both factors explicate over 77% of variations in all the variables.

Table 3
Total Variance Explained

Compon.	Initial Eigenvalues			Rotation Squared Sums of Loadings		
	Tot.	% Var.	Cumul. %	Tot.	% Var.	Cumul.%
1	5.2	47.3	47.3	5.0	45.4	45.4
2	3.3	30.4	77.7	3.5	32.3	77.7

Extraction Method: Principal Component Analysis.

What follows is a representation of factor loading matrix, after factor rotation which shows the explanation coefficients for the variables of each selected factor. The first column contains shaded variables with the first component (the first factor) being the dominant one, whereas the second column contains variables which are better represented by the second factor.

Table 4
Rotated Component Matrix[a]

	Component 1	2
School Pop., Primary Educ., thousands	.192	.945
School Pop., Secondary Educ., thousands	.136	.975
School Pop, Terciary Educ., thousands	.107	.979
Critical thinking in teaching	.316	-.592
Mean years of schooling	.859	-.258
School life expectancy years	.461	-.266
Budget transparency	.853	.319
Incidence of corruption	.921	-.132
Property rights	.883	.239
Intellectual property protection	.934	.277
Debt dynamics	.810	.085

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 3 iterations.

Variations in school population in primary, secondary and tertiary education are better explained by the second factor (positive direction), and the same holds for the variables of critical thinking in teaching (negative direction). On the other hand, the variables of institutional character, mean years of schooling and school "life" expectancy are significantly explained by the first factor. In further analysis, the components will be renamed according to the kinds of variable.

The first component is given the name Institution-Education Variable, and the second one School Population. Both of the formed variables are defined as independent in the evaluation of the impact on economic development (the level of GDP per capita). The first section shows the result of summary statistics for the countries in the sample (Table 5), where the determination coefficient is R2 = 0,74, which means that 74% of variations of GDP per capita is explained in terms of joint impact of the independent variables in the model. With the F test result of 7,6 and probability level below 5% i.e. 3,7, it is obvious that there is significance of the formed regression model.

Table 5
Model Summary[b]

Model	R	R^2	Adj. R^2	Std. Error of the Estimate
1	,86[a]	,74	,65	4,24

a. Predictors: (Constant), Institucon-Education Var., Educational population
b. Dependent Variable: GDP per capita thousands

The same conclusions are indicated by the second section of the regression analysis of variance (ANOVA) in Table 6. Calculated sums of squared deviations of regressors, residuals and total value for the given freedom degrees confirm the significance of the results of the observed model.

Table 6
ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	299,891	2	149,945	8	,02[b]
	Residual	107,846	6	17,974		
	Total	407,736	8			

a. Dependent Variable: GDP per capita thousends
b. Predictors: (Constant), Institucon-Education Var., Educational population

The following section (Table 7) shows the results of individual impact of independent variables in the model. The Institution-Education variable has positive direction in explaining the dependent variable trends (GDP per capita) with high value of the coefficient (6,06), and the value of t statistics (8,621). The results point to the conclusion that there is individually significant impact of the variable Institution-Education, as the obtained probability is below the cut-off value of 5% (0,7 %).

Even though the impact of Education Population in the model is of positive direction, with the coefficient of 0,827, statistically it has not been assessed as significant in explaining the fluctuations of the dependent variable at the statistical significance level of 5 %.

Table 7
Coefficientsa

Model	Unstandardized Coefficients		t	Sig.
	B	Std. Error		
(Constant)	12,183	1,413	8,621	,000
Institucon-Education Var.	6,06	1,499	4,047	,007
Educational population	,827	1,499	,552	,601

a. Dependent Variable: GDP per capita thousends

Discussion

The Balkan and Southeast Europe countries have undergone transitional processes. Currently, with larger investments in the development of education and research, as well as building and reforming all institutions, they, as members or candidate members, are trying to speed up the economic growth. The majority of economically, educationally, geographically, culturally and traditionally similar countries of Southeast Europe are reforming their education systems, developing and strengthening educational and other institutions, while in parallel harmonising standards and legislation with the EU. Still, despite numerous measures, the region is not showing perceptible indicators that point to dynamics and stability of economic growth rates.

It has been said that the modern aspects of social development are complex and multidisciplinary. To the main, economic and technical-technological factors there can be added the educational factor, which is becoming an important factor of economic development (it has been pointed out in the development function that it can be interpreted through technical progress – Tp). No less important for the economic development are institutional factors, intellectual property rights protection, state in the corruption sphere, as well as budgetary and fiscal stability. The majority of the stated factors is in strong interaction, and it is on them that the economic development, but also wider social structural and other changes depend.

There is a growing number of countries that are adopting and implementing the policies of smart,

inclusive and sustainable development and growth (that is, increase in GDP pc), which is taking place in humane social environment. Such a developmental approach is also being implemented by the European Union, which has accepted the standards of sustainable, smart and inclusive growth through the implementation of the Europe 2020 strategy. It is more than obvious that smart development is based on modern and developed education system, and investment into research, development and innovations. Smart development is actually the process of continuous accumulation of new knowledge in all the resources of the education system. Education subsystems, namely primary, secondary and tertiary education, are bound with inclusive growth too. This means that social engagement depends to a larger extent on the quantity and quality of the education system.

The initial results of the econometric analysis show that there is more significant standard deviation from the average only in the data related to the school population at all three levels of education, which is explainable in terms of differences in the size of the population. Other variables do not show significant statistic deviations.

Factor analysis shows high level of explanation of the variance for the variables which have been grouped into two factors. The first factor explains 45,46%, and the second one 32.2% of the fluctuations of all the variables, which is statistically highly significant, because taken together, both factors explain over 77% of the variations of all variables. After factor rotation which shows the coefficients of explanation of the variables for every one of the selected factors, the factor loading matrix was formed.

The first column contains the variables where the first component (the first factor) is the dominant one, while the second contains the variables that are better represented by the second factor. The research has shown that the institutional variables, mean years of schooling and school life expectancy are significantly explained by the first factor. The second factor better explains the variations in school population in the primary, secondary and tertiary education, which have positive direction. The same holds for the variable that is explained by the indicator of the state of critical thinking in teaching, but the only thing is that this variable has negative direction.

On the basis of the obtained results and variable characteristics, the factors were renamed. The first factor was named Institution-Education variable, whereas the second one was named School Population. De facto, two new independent variables were formed in the assessment of the impact on the growth of GDP pc.

The first section in the remaining part of the research shows that the determination coefficient amounts to R2 = 0,74, meaning that 74% of the variations of the dependent variable, GDP pc, is explained by joint impact of the independent variables in the model. F test results of 7,6 and the probability value below 5% i.e. 3,7 show significance of the regression model. Regression variance analysis (ANOVA), sums of squared deviations of regressors, residuals and total values for the given freedom degrees, confirm the significance of the selected model.

There are multidisciplinary studies in the fields of education, science, institutions and economic growth. However, there are few researches and studies that deal with the problems of post-transition countries of the analyzed geographical area, as in this paper.

The research into individual impact of independent variables in the model shows that the institutioneducation variable is significant. This result is in agreement with the research conducted by Nistor et al., (2018), who proved that the economic progress depends on the synergy of key institutions and other factors. The results also comply with the research carried out by Lilles and Rõigas (2017), who proved that conditions for the implementation of smart and inclusive growth depend on educational institutions. This confirms that the education system (and the system of other activities) is a factor of economic growth in SEE countries. Individual impact of the education population in the model is not sufficiently significant. But both variables (the first and second factor) have positive direction in explaining variations of the dependent variable, GDP pc.

The relevance of the models that base economic growth on knowledge (Hanushek and Woessmann, 2020a), research, development and innovations (Visvizi, Lytras and Daniela, 2018; Hanushek, 2016) has been indirectly proven.

Conclusions

The initial hypothesis in this research is that economic growth is significant and that it positively correlates with the state of education systems of this region's countries. The hypothesis that the indicators of the state of educational and other institutions positively correlate with the growth of GDP pc has been tested as well. For the purpose of proving, this paper makes use of econometric analysis, where, beside GDP pc, the following variables have been used: School Population Primary Education, School Population

Secondary Education, School Population Tertiary Education, Critical Thinking in Teaching, Mean Years of Schooling, School Life Expectancy, Budget Transparency, Incidence of Corruption, Property Rights, Intellectual Property Protection and Debt Dynamics.

The applied methodology is also possible for other combinations of educational and scientific research factors. Factor analysis is an optimal tool for assessing the interrela-tionships between a large numbers of different social indicators. Econometric analysis confirms to a great extents the initial hypotheses that the state of education system and institutions correlates with the economic growth of the SEE countries.

Segments of the education system are placed in the context and interaction with economic growth in this research, and the obtained results represent a research novelty. The choice of institutional factors in combination with the above represents an additional degree of novelty. The research novelty of the paper is the breadth of geographical space and differences in the level of development of a group of different countries, which largely depends on the correct choice of model.

In accordance with the obtained results, it is possible to suggest the following recommendations:

- Southeast Europe countries need to improve cooperation in the field of education. When it comes to education, there should be expanded the existing forms of cooperation in higher education, paying respect to the interests of the region and EU. The same holds for cooperation in the field of science and research. The priorities are standardization and quality.
- Cooperation should also be developed in the field of secondary education. Given the freedom of workforce movement in the region, it seems justified for the SEE countries to cooperate in this field as well. This pertains to technical, medical, IT and other vocations. The priorities are standardisation and quality of education.
- Cooperation with the European Union should be strengthened in terms of participation in Euro funds. What presents a challenge are participations in larger scientific-research projects.
- The aim is to strengthen public institutions, particularly educational and scientific ones. Public institutions impact macroeconomic and budgetary balance and create assumptions for the growth of investment in education, science and research. Their share in GDP (except Slovenia and Greece) is, currently, several times lower than the EU average.

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Conflict of interests

The authors declare no conflict of interest.

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Value-Semantic Bases of Ideas About the Profession and Satisfaction With the Profession of Higher School Teachers

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Abstract: The business culture in the educational system remains conservative, despite the fact that the values of tolerance are wide-spread in the world. This affects the transformation of ideas about the profession of teachers. The article establishes the relationship of ideas about the profession and satisfaction with the profession with the values and meanings of university teachers. It is assumed that in modern conditions of higher education, values and life meanings may differ among teachers with different ideas about the profession. The study sample consists of 270 university teachers aged between 25 and 65 years, work experience from 3 to 25 years, 150 women and 120 men. We used the questionnaire of professional satisfaction (Kissel), the method of measuring values (Schwartz), the semantic differential (Osgood), and the method of identifying life meanings (Kotlyakov). We defined groups of teachers with a neutral view and a positive view of the profession, with varying degrees of satisfaction with the profession. As a result, it was found out that the group of teachers with a neutral attitude to their profession has the most manifested values: conformity, hedonism, security, and meanings: hedonistic, status, and family. The group of teachers with a positive view of the profession, has the values of independence, achievement and security, combined with the meanings: altruistic, self-realization, family and cognitive. It is concluded that university teachers with positive ideas about the profession are more altruistic about their activities, and teachers with neutral ideas about the profession are pragmatic about it.

Keywords: ideas about the profession, satisfaction with the profession, teachers, values, life meanings, semantic space.

Introduction

Educational, methodological, bringing-up and scientific activities of higher school teachers require costant updating of personal resources in situations of market and state pressure (Panev and Barakoska, 2015; Kekeeva and Sherayzina, 2016; Dart, McCall, Ash, Blair and Palermo, 2019) and high accountability (Sambell, Brown and Graham, 2017). The main requirements for a university teacher in the modern conditions of education increase the relevance of the study of his value-semantic sphere in connection with changing ideas about the profession.

The ideas about the profession are a cognitive component of the image of the profession, interconnected with the motivational and value component.

In psychology, an idea (representation) is understood as a visual image of an object or phenomenon that arises from a personal experience by reproducing it in memory or in imagination. Social ideas are a generalizing symbol, a system of interpretation, classification of phenomena (Moscovici, 1990). Cognition and behavior exist only because they mean something in our ideas, notes Moscovici (1990). Ideas about the profession as a kind of social ideas determine the significance of the profession for a person.

Propositional representations and situational representations play an important role in the formation of ideas about the profession (Clarà, 2014). The situation largely corrects the teacher's knowledge and his attitude to work. Sometimes teachers ' mental representations of relationships with students shape their affective responses (Evans, D., Butterworth, G. and Law, 2019).

Representations of professionals as regulators of professional activity of self-determination have been studied by many researchers (Belova, 2014; Duţă, Pânişoară and Pânişoară, 2014; Belousov et all., 2015; Lyukshina and Kalita, 2018, etc.).

The authors note that adequate ideas about the profession among specialists are a condition for coscious compliance with the chosen professional activity and the direction of the personality as a whole. During the course of professional activity, a specialist asks questions about the correctness of the choice

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of profession, especially during crisis periods of professional development. The ideas about the profession strengthen or destroy the positive image of the profession (Belousov et all., 2015; Dart et al., 2019).

Professionals who evaluate their profession as a way of life have a specific perception of the surrounding world. In this case, the image of the profession and its ideas are perceived as natural, merged with the worldview of the professional (Lyukshina and Kalita, 2018).

The image of the profession is based not only on the realities of the profession, but also on the personal items, values that the specialist accepts. Professional representations are constructed on the bases on values, priorities, and guidelines. The system of value orientations is related to the highest goals of the individual (Pryazhnikov, 2014; Nevgi and Lofstrom, 2015). The highest goals of a professional are assocated with limited meanings.

Values and meanings determine the orientation of a professional's personality. In our research, we adered to the concepts of values by Schwartz (2006), which are universal and reflect the value foundations of the personality in a changing world and are interpreted as "known" needs, largely dictated by society and culture. Today, value oppositions that influence the formation of professional behavior are of great interest (Golyanich et all., 2018). According to a study of teachers in Nigeria, it was found out that male teachers had lower average scores in the "taking care of themselves" and "taking care of business" than women. The higher the years of work, the lower their "taking care of the family" (Chinweuba et all., 2019).

We were interested in values that are most expressed among university teachers. There are not many studies devoted to studying the values of higher school teachers, and they primarily emphasize the instrumentality of teachers' values. The values of teachers in the works of authors are such values as goals, means, norms, and regulators of pedagogical activity.

Values, regulating pedagogical activity, are interconnected with meanings. "Semantic-forming motives" act as motivators of activity. They also give it a personality meaning (Leontiev, 2005). Understanding peagogical activity, in interaction with colleagues and students, teachers generate new meanings. We would like to understand exactly what meanings are interlinked with what values among university teacers today.

Professional activity is guided by instrumental meanings that are included in the professional's life meaings (Koteneva and Kobzarev, 2019). The teaching profession can be associated in different ways with the leaing meanings of a teacher's life: the profession of a teacher as the main meaning of his life; the profession of a teacher as an instrumental meaning of his life; the profession as not the most significant element of the meaning of his life (Belousov et al., 2015). The semantic content of a teacher's professional activity is significant for its realization.

Logically, we can conclude that meanings guide values. In the process of development of a specialist, during which there is a change of roles, positions, new motives are born, which affects his views and image of the profession. One of the functions of representation is to convey meaning (Moscovici, 1990). Consequently, as a result, it becomes clear that the system of representations generates meanings, which in turn stimulate or strengthen the values of the professional.

Values, meanings and ideas about the profession give rise to a special attitude to it. The attitude to the profession determines the professionalism of a teacher. There are 4 types of attitude to the profession: profession as a hobby; profession as a vocation; profession as a disappointment; alienation in the profession (Peretyatko, 1991). These relationships may be the sides of the overall attitude to one's profession at various stages of becoming a professional. In crisis situations, a teacher may also face alienation from the profession and experience frustration. However, in moments of success, the teacher may feel a passion for professional activities and see the profession as his vocation. Professional skills include a set of core values or fundamental elements in addition to mastering the broad scientific knowledge and skills of the profession, and these are aspects of humanism. Professionalism is a multidimensional concept that includes core values or humanistic aspects such as respect, responsibility, care, leadership, altruism, compassion, etc. (Salam et al., 2012).

The basic understanding of the meaning of work is closely related to the spiritual values that people possess in their work. They help to increase job satisfaction and self-fulfillment in work through internal and external satisfaction, to be able to increase productivity and well-being satisfaction. Workplace spirituality also has a positive and meaningful relationship with organizational commitments (Fanggidae et al., 2016).

In the course of professional development, the image of the profession and its ideas change, it is filled with new content or distorted (Ovsyannikova, 1981; Panev and Barakoska, 2015; Kekeeva and Sherayzina, 2016). This is largely influenced by working conditions, interaction in the work team, the degree of job satisfaction, and so on. That is, the degree of subjective well-being of a specialist at work largely influences the views and image of the profession. Teachers who have a strong personal professional orientation, in which they show liberal views of higher education and the importance of

research, the learning process, internal value for themselves, and a strong professional commitment to teaching express their position by the statement that if it were not for students, he would not have stayed at the university (Dunning, 2019).

The values and meanings of modern teachers appeared in the era of socialism or the transitional era of perestroika. The past era assumed traditional values of collectivism. These values were based on a stable way of life and peace. The meanings of the teaching profession were related to the service of the public well-being, the goal was to educate and develop a harmonious personality. New realities in the educational space have changed. The teaching process is based on the competence model of a specialist. The control over the activity of teachers has increased as well as the number of submitted work reports. Educational goals have disappeared from the law on education. The values and meanings of the profession of a teacher from the socialism era are in conflict with the modern requirements. Generalization of research in this area allowed us to formulate the following contradictions between the expectations of the profession, ideas about their profession of teachers and the presence of a sense of impossibility to implement these expectations and ideas.

This is the problem of research, namely, the identification of value-semantic bases of ideas about the profession and satisfaction with it among higher school teachers. Thus, based on the above mentioned, we formulated the purpose of the study: to study the values and meanings of university teachers with different ideas about their profession.

Materials and methods

The study sample consisted of university teachers from Rostov-on-Don in the number of 270 people, aged between 25 and 65 years (M= 32; SO=7.6), work experience from 3 to 40 years, 150 women and 120 men, teachers of humanitarian specialties and directions. All teachers participated in the survey voluntarily.

The study used: professional satisfaction questionnaire (A. A. Kissel) (Yadov and Kissel, 1974); Values questionnaire (Schwartz, 2006) (adapted by Karandashev, 2004); Method of determining Kotlyakov's life meanings (2004); Semantic differential (Osgood, 1959). Statistical methods: correlation analysis, Mann-Whitney difference criterion, exploratory factor analysis (Principal Components Analysis).

The questionnaire "Attitude to the profession" by A. Kissel (Yadov and Kissel, 1974). The questionnaire is a survey that was conducted in writing. The questionnaire presents 15 statements, which the survey participants should note if they agree with it. The method of presenting answer options is dichotomous. Three statements each relate to different levels of satisfaction with the profession. The satisfaction index consists of 5 responses. If the respondent is fully satisfied with the profession, he gets 5 points if he is satisfied in general, gets 4 points, if he is undefined, then he gets 3 points, if he is satisfied a little, then he gets 2 points and if he is not satisfied, then he gets 1 point.

The semantic differential technique by Osgood (Osgood, 1959). This is a method of quantitative and qualitative assessment of objects and subjects by means of a two-pole scale. The method reveals associative connections between objects in consciousness. Traditionally, the author has defined 16 scales. Each scale is represented by a pair of antonyms that express the desired parameter. This technique explores the subjective space of a person. Each scale contains a gradation from -3 to +3. According to Osgood, 1959 each parameter can be attributed to 3 factors: score, strength, and activity. The rating for the group is carried out on each scale, and the average indicator is calculated. The results can also be represented as a space where the concepts under study (points in space) and the distances between them are indicated, which can indicate their semantic load.

The method of Schwartz, 2006 allowed us to investigate the value orientation of teachers. In our work, we used the Schwartz method, 2006 for the study of personal values, since the second method is used for the study of cultural values. The methodology is a structured questionnaire. It contains statements of agreement or disagreement that the respondent must express. The method described was adapted for the Russian respondents. The method presents 10 values that were different in motivational orientation (power, achievement, hedonism, stimulation, independence, universalism, kindness, tradition, conformity, security). In the questionnaire, the subject evaluates the importance of the value from 1 to 7 points. Then the average value is calculated for each value and the significance of the value for the respondent is determined. The very first ranks are occupied by values that are the most important ones for the individual.

The Kotlyakov's method of determining life meanings (2004). The method is aimed at identifying the hierarchy of life meanings in respondents. The author, studying various methods, definitions of meanings, identified 8 categories of life meanings: altruistic, existential, hedonistic, status, communicative, family, cognitive, self-realization. The author understands the presented meanings as follows:

• altruistic – based on the need to help others selflessly;
• existential – based on the need for freedom of choice, filled with living a life;
• hedonistic – based on the need to enjoy the full benefits of life;
• status – based on the need to build a career, achieve status heights in life;
• communicative – based on the need to communicate with others, to experience the pleasure of communicating with others;
• family – based on the need to take care of your family, the need to build positive relationships in the family;
• cognitive – based on the need to know the surrounding world, to identify the essence of phenomena;
• self-realization – based on the human need for self-development and self-improvement.

The subject selects the most significant statements out of 24, which are then divided into categories. Then the rank values for each category are calculated.

We put forward the following hypothesis: H1 - it is possible to identify groups of teachers with a different attitude to the profession; H2 - it is possible to define the difference of the semantic elements of views about the profession of teachers with different attitude to the profession; H3 - we assume that values will be significantly different among the teachers with different attitude to the profession; H4 - we assume that life meanings will be significantly different among the teachers with different attitude to the profession; H5 - we assume that it is possible to reveal the relationship between indicators in the studied groups.

Results

To differentiate groups of teachers, we used the Kissel job satisfaction questionnaire (Yadov and Kissel, 1974). It includes statements that reflect the attitude to the profession. Since satisfaction with the profession, which expresses an attitude to the profession is associated with the idea of it, we can use this questionnaire.

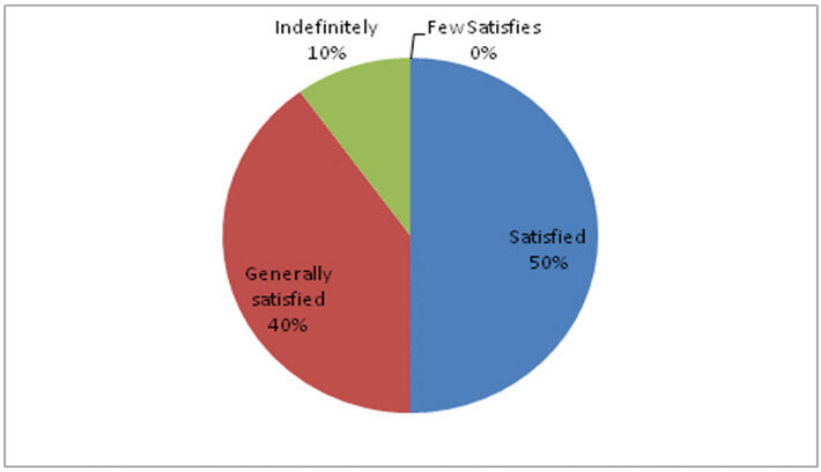
The results of the questionnaire are shown in Fig.1 and 2.

Out of 64,81% of the teachers - 175 people – are “generally” satisfied with the profession and we put them in Group 1, which we called the “positive ides of the profession” group (Fig.1). In their responses, the teachers of this group highlighted the following statements:

“I like my profession more than I don’t like it”;
“I believe that my profession is no worse than many others”;
“Most other professions are better than my profession”.

We would like to note that the teachers mentioned in their comments other professions that may be better. The teachers particularly noted the professions with high earnings. The teachers also referred to the crisis in the educational system and called for radical changes.

Figure 1.
Professional satisfaction in a group of teachers with a positive idea of the profession



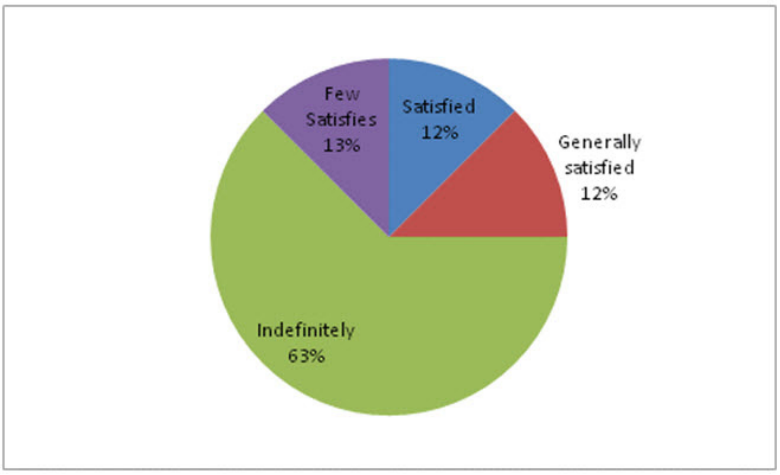
As a result of the research out of 270 teachers, 35.19 % - 95 people answered that they had an undefined attitude to the profession, and we assigned them to Group 2, which was called the “neutral idea of the profession” group (Fig.2). These teachers marked the following positions in the questionnaire:

“My profession is not worse or better than others”;

"It's hard to say whether I like my profession";
"I am quite indifferent to my profession."

Almost all teachers of this group noted in their comments that this attitude to the profession is generated by the current situation in education, which they described as a crisis. Some teachers also noted that they probably have professional burnout. They said that it is unlikely that something can be changed here and it is better to keep neutrality.

Figure 2.
Professional satisfaction in a group of teachers with a neutral idea of the profession



The hypothesis H1 was confirmed

To confirm the result, it was necessary to support the indicators of attitude to the profession with the data on the semantics of ideas about the profession. We performed a semantic differential method in two groups. The results are shown in Table 1.

Table 1.
Indicators of the semantic differential of ideas about the profession in two groups of teachers

Descriptive Statistics												
	N		Minimum		Maximum		Mean		Std. Deviation		U	P
Indicators	Ne	Po	Ne	Po	Ne	Po	Ne	Po	Ne	Po		
Jolly	95	175	19,00	26,00	21,00	30,00	20,2143	28,0000	,57893	1,45095	231	0,00
Good	95	175	12,00	25,00	14,00	27,00	13,3571	26,5000	,74495	,68825	631	0,00
Full	95	175	14,00	20,00	16,00	23,00	15,0714	21,7000	,73005	,92338	52	0,013
Light	95	175	12,00	12,00	15,00	14,00	13,9286	13,1000	,73005	,85224	552	0,001
New	95	175	22,00	23,00	24,00	25,00	22,7857	24,3000	,69929	,80131	43	0,00
Quick	95	175	23,00	23,00	25,00	27,00	24,6429	25,9000	,63332	1,55259	613	0,007
Warm	95	175	11,00	12,00	13,00	14,00	12,0714	13,0000	,73005	,64889	72	0,00
Long	95	175	18,00	25,00	21,00	27,00	19,7857	26,3000	,80178	,80131	433	0,017
Complex	95	175	19,00	23,00	21,00	26,00	19,8571	24,4000	,66299	,94032	224	0,012
Active	95	175	23,00	25,00	26,00	29,00	24,5000	27,7000	,75955	1,03110	570	0,05
Strong	95	175	9,00	10,00	11,00	14,00	12,2857	10,9000	,61125	1,07115	517	0,00
large	95	175	27,00	21,00	28,00	24,00	27,4286	22,4000	,51355	,94032	420	0,00
Valid N (listwise)	95	175										

Po - a positive view of the profession
Ne - a neutral view of the profession

All the scales showed the significance in differences in the groups. Teachers with a positive view of the profession dominated on the following scales: quick, warm, new, difficult, long, light, full, good and cheerful. Table 1 shows the significance of the differences. As we can see from the results of the obtained

data (Table 1), teachers with a positive view of the profession and a neutral view of the profession rated activity in the profession equally, but had significant differences in the activity indicator (U=0.570; p=0.05). From the side of rapidly changing conditions in higher education, mobility and from the point of view of novelty, teachers need to be active. To a lesser extent, teachers appreciated the warmth of relationships at work, the bright sides of the profession and the strength of the profession. There was a domination of negative responses. This indicates that it is not possible to receive psychological support from colleagues in difficult working conditions.

Next, we obtained a spatial representation of the semantic space values of the profession representation. To do this, the data was factorized. The results are presented in Tables 2 and 3. for the groups with positive ideas of the profession. The 4 components presented accounted for 84.485 % of the dispersion.

Table 2.
Total Variance Explained for Group 1

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,096	34,130	34,130	4,096	34,130	34,130
2	2,509	20,909	55,039	2,509	20,909	55,039
3	2,353	19,606	74,645	2,353	19,606	74,645
4	1,181	9,840	84,485	1,181	9,840	84,485
5	,761	6,340	90,825			
6	,504	4,196	95,021			
7	,287	2,391	97,412			
8	,226	1,884	99,296			
9	,085	,704	100,000			
10	1,184E-15	9,869E-15	100,000			
11	1,384E-16	1,153E-15	100,000			
12	7,903E-17	6,586E-16	100,000			

Extraction Method: Principal Component Analysis.

Table 3.
Component matrix for Group 1

Component Matrix[a]

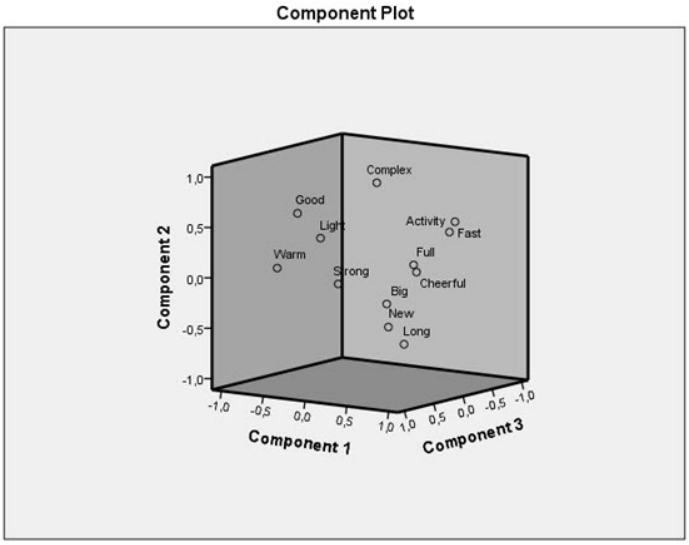
	Component			
	1	2	3	4
Cheerful	,769	,131	,305	,115
Good	-,793	,528	,106	-,020
Fast	,643	,497	-,532	-,056
Activity	,588	,392	-,515	,285
Warm	-,834	,022	,393	-,146
Full	,796	,218	,393	-,075
New	-,059	-,600	-,398	,526
Long	,239	-,718	-,240	-,352
Complex	-,005	,878	-,122	-,209
Strong	,234	,042	,878	,013
Big	,632	-,154	,617	,301
Light	-,522	,308	,100	,722

Extraction Method: Principal Component Analysis.

a. 4 components extracted.

The semantic spaces of profession representations in groups are shown in Fig. 3 and 4.

Figure 3.
Spatial representation of semantic space values ideas of the profession of teachers with positive views of the profession



As you can see in Figure 3, the space can be divided into three areas of represented semantics in a group with positive ideas about the profession. In the first area, we can distinguish four concepts: warm, good, light and a little strong, which indicates a positive background for the profession. The second space combines the following concepts: active, fast, full, and fun. We think that this reflects the dynamic part of the idea of the teaching profession. The third space grouped the concepts: big, new, long, which is opposed by the indicator complex. It is possible that this opens up the introduction of various innovations into the work of university teachers.

Factorization of data in a group with neutral views of the profession. The results are presented in Tables 4 and 5 for the groups with neutral views of the profession. The 5 components presented made up 86.188 % of the dispersion.

Table 4.
Total Variance Explained for Group 2

Total Variance Explained

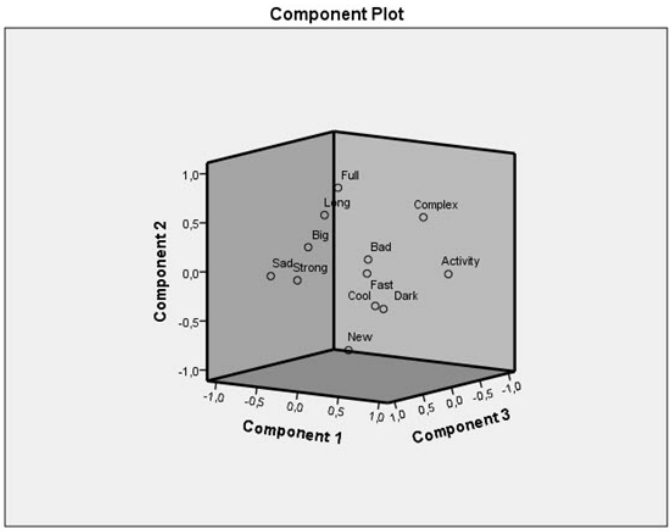
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,405	28,371	28,371	3,405	28,371	28,371
2	2,256	18,800	47,171	2,256	18,800	47,171
3	2,077	17,308	64,479	2,077	17,308	64,479
4	1,475	12,291	76,770	1,475	12,291	76,770
5	1,130	9,418	86,188	1,130	9,418	86,188
6	,593	4,945	91,133			
7	,408	3,403	94,537			
8	,293	2,442	96,979			
9	,231	1,927	98,906			
10	,079	,659	99,565			
11	,036	,301	99,865			
12	,016	,135	100,000			

Extraction Method: Principal Component Analysis.

Table 5.
Component matrix for Group 2

Component Matrix[a]					
	Component				
	1	2	3	4	5
Sad	-,672	-,069	,623	,095	,203
Bad	,449	,198	,516	,564	-,292
Fast	,537	,085	,660	-,038	,236
Activity	,832	-,036	-,345	,290	-,113
Cool	,328	-,330	,219	,408	,732
Full	-,411	,742	-,184	,165	,260
New	-,198	-,875	-,063	,101	,153
Long	-,036	,613	,588	-,393	,037
Complex	,420	,480	-,494	-,121	,516
Strong	-,805	-,221	-,035	-,249	,155
Big	-,553	,167	,135	,629	-,120
Dark	,567	-,309	,415	-,480	-,045
Extraction Method: Principal Component Analysis.					
a. 5 components extracted.					

Figure 4.
Spatial representation of semantic space values ideas of the profession of teachers with neutral views of the profession



As you can see in Figure 4, the space can be divided into the following areas of represented semantics in a group with neutral ideas about the profession. In the first area, you can find the concepts: new, cold, dark, which indicates a negative background for the representation of the profession. The second space combines the concepts: complex, bad, fast, active. We think that this reflects the dynamic part of the idea of the teaching profession. The third space grouped the concepts: full, long, large. Here we see the meaning of the profession as filled. The fourth space is sad and strong.

Having applied the Mann-Whitney difference criterion (Table 1), it could be concluded that teachers with a positive view of the profession rated the profession as more complex (U=63; p=0.012), lasting a long time (U=.433; p=0.017), filled (U=52; p=0.013), good and fun (U=613; p=0.000).

The teachers with a neutral view of the profession rated the profession as strong (U=517; p=0.000). So, the H2 hypothesis was confirmed.

Next, we explored the values of teachers. The results are shown in Table 6.

Table 6.
The expression of values in two groups of teachers

Descriptive Statistics												
	N		Minimum		Maximum		Mean		Std. Deviation			
Indicators	Ne	Po	Ne	Po	Ne	Po	Ne	Po	Ne	Po	U	P
Safety	95	175	4,9	4,1	5,1	4,4	5	4,2273	0,06325	0,1009	621	0,00
Conformity	95	175	3,4	5	4,1	5,3	3,7455	5,1364	0,18091	0,0809	147	0,013
Traditions	95	175	4	3,8	4,6	4,1	4,2182	3,9818	0,17787	0,08739	432	0,78
Compassion	95	175	4,1	3,8	4,3	4,1	4,1636	3,9818	0,0809	0,07508	340	0,65
Universalism	95	175	3,5	2,9	3,9	3,1	3,8091	3	0,13751	0,06325	221	0,77
Independence	95	175	4,3	3,1	4,7	4	4,5091	3,3818	0,1446	0,23587	521	0,015
Stimulation	95	175	3,2	2	3,7	2,4	3,4636	2,2182	0,15015	0,1328	737	0,00
Hedonism	95	175	2	4	2,4	4,3	2,1273	4,0909	0,11909	0,10445	432	0,018
Power	95	175	2,5	3,1	3	3,6	2,8182	3,3636	0,16011	0,15667	446	0,84
Achievements	95	175	4,1	3,1	4,8	3,3	4,4182	3,1818	0,1834	0,07508	503	0,010
Valid N (listwise)	95	175										

As the results of the study of values show (Table 6), teachers with a neutral view of the profession have the most expressed values: safety, conformity, hedonism. Consequently, they strive for stability in relationships, to meet the expectations of others are aimed at enjoying the work they do.

In the group of teachers with positive ideas about the profession, the following values are more expressed: safety, achievement, independence. Therefore, these teachers are also aimed at stability in relationships at work, are focused on success, independent decision-making about the choice of ways to act at work.

We found significant differences on the scales of conformity (U=147; p=0.013), hedonism (U=432; p=0.078) with the predominance of a group of teachers with a neutral view of the profession. The scales of safety (U=621; p=0.000), achievement (U=503; p=0.010), stimulation (U=737; p=0.000) and independence (U=521; p=0.015) with the predominance of a group of teachers with a positive view of the profession.

By including values in the professional orientation, we can conclude that the teachers with a neutral view of the profession expressed conservatism, self-exaltation. Teachers with a neutral view of the profession are aimed at conservatism, self-realization through achievement and openness to experience.

Both groups of teachers noted the value of security, which reflects their vision of the educational system as a crisis. The H3 hypothesis was confirmed.

Next, we conducted a study of life meanings in two groups. The results are shown in Table 7.

Table 7.
The expression of life meanings among the teachers

Descriptive Statistics												
	N		Minimum		Maximum		Mean		Std. Deviation			
Life meanings	Ne	Po	Ne	Po	Ne	Po	Ne	Po	Ne	Po	U	P
Altruistic	95	175	2,1	3,54	2,34	3,8	13,1	24,2	0,14709	0,19936	156	0,02
Existential	95	175	3,1	3,95	3,14	4	15	20,9	0,01027	0,01494	657	0,76
Hedonistic	95	175	3,42	4,5	3,48	4,52	25	15,1	0,01789	0,00707	293	0,00
Self-realization	95	175	2,2	3,54	2,34	4	22	23,8	0,0388	0,11723	541	0,83
Status	95	175	4,1	2,11	4,3	2,2	24,2	22,3	0,06325	0,02421	474	0,66
Communicative	95	175	3,21	4,4	3,45	4,58	21,3	20,8	0,06369	0,04718	507	0,83
Family	95	175	3,3	2,3	3,8	2,9	24,18	25,4	0,14709	0,19936	649	0,64
Cognitive	95	175	3	4,89	4,4	5	22,09	22,5	0,40233	0,03013	172	0,012
Valid N (listwise)	95	175										

In the group of teachers with a positive view of the profession, the following life meanings are most expressed: altruistic, existential, family, and cognitive. In the group of teachers with a neutral view of the profession, the following life meanings are most expressed: hedonistic, status, and family.

The greatest differences between the two groups were altruistic life meanings (U=156; p=0.020), hedonistic (U=293; p=0.000), and cognitive (U=172; p=0.012). The H4 hypothesis was confirmed.

Our attention was drawn to the result showing that the group of teachers with a positive attitude to the profession has the least hedonistic meanings, and the group of teachers with a neutral view of the profession has the least altruistic meanings. Thus, the teachers with a positive view of the profession are willing to sacrifice their personal time for work, and teachers with a neutral view of the profession are not ready to do this.

Next, we processed the data obtained by means of Pearson's correlation analysis. The correlation analysis actually combined the results of the obtained data in each group.

In the group of teachers with a positive view of the profession, the following correlations were established: between complexity and family meanings (correlation coefficient r=0.50*); altruistic meanings and security (r=0.70**); fullness and independence (r=0.56*); complexity and achievements (r=0.62*); cognitive meanings and complexity (r=0.53**).

In a group of teachers with a neutral view of their profession, the following correlations were found: between conformity and value hedonism (r=0.53**); great strength and security (r=0.54*), status meanings (r=0.63*); hedonistic meanings and family values (r=0.71*). The H5 hypothesis was confirmed.

Discussions

The modern education system places high demands on high school teachers. Conditions have changed, and such phenomena as the expansion of information flows, the improvement of technical means, the acceleration of life, and changes in the nature of social relations are manifested. Therefore, it is important to study the psychological characteristics of high school teachers.

In our study, we established the features of values and meanings of university teachers with different ideas about their profession. However, we did not emphasize a specific area of professional activity, noting only that the studied teachers are humanitarians. In a study of the semantics of the image of the teaching profession in the field of linguistics (Belousov et al., 2015), it was noted that for professors, the domains were: intelligence, ethics, and emotionality. They were opposed by domains: materialism, hedonism. This is combined with our results on the altruism of teachers with a positive view of the profession.

We have shown that the concept of a profession includes the image of a profession, which is influenced by the attitude to the profession. Our data can be compared with the Turkish researchers (Erus, Cakmak and Celebi, 2015), who demonstrate that it is typical for university teachers to emphasize the main disadvantage of academicity is low income (42%). Turkish teachers identified the advantage of their profession in the fact that they share scientific knowledge with young people (30%) and the prestige of the profession in society (17%).

Images of the profession are included in the professional self-determination of the specialist's personality. In the course of self-realization, the subjectivity of the teacher as a creative person is formed (Panov and Selezneva, 2019). There are 5 levels of self-realization in the profession: 1) destructive level of rejection of their profession, includes an aggressive component; 2) avoiding level - the desire to avoid professional activity; 3) passive level includes the performance of activities on a model; 4) perfect level, when a specialist seeks to improve his activities; 5) the creative level implies creativity in professional activity (Pryazhnikov, 2014). The presented levels helped us to classify university teachers into different categories according to their ideas about their profession in the empirical part of the study.

In our work, we have paid special attention to the issues of value and semantic sphere of a teacher, which guide his activities and largely determine the subjective well-being in the profession, affect the self-attitude of the teacher to himself as a specialist.

Our study of teachers' meanings can be compared with the study of the Romanian colleagues (Duţă et al., 2014). It was shown that the Romanian teachers have general competencies in the 1st place, pedagogical competencies in the 2nd place, and scientific competencies in the 3rd place. The Spanish teachers ranked the teaching competence on the 1st place, which were followed by scientific and general ones. In our study, cognitive, altruistic, and existential meanings were ranked first. It is important that existential meanings and values of safety have taken a significant place. It is also interesting from the point of view that it is in tune with the position of the Indian colleagues (Mahipalan and Sheena, 2019), who consider spirituality and subjective happiness to be a necessary component of teaching.

We have proved that teachers with different ideas about the profession differ in the expression of

certain values and meanings. These were values and meanings in the group with positive ideas: altruistic, achievements, and in the group with neutral ideas - it was conformity and hedonism. We confirmed our results by a similar study (Abakumova, Berberyan and Berberyan, 2019). The teachers emphasized the value of safety, which reflects the current unstable working conditions. Our result is combined with the data of Ovchinnikov, Bogomaz, and Gychev (2015), Panev and Barakoska (2015), Kekeeva, Sherayzina (2016), which demonstrate that the structure of the profession's image has stable, sustainable, situational and changeable ideas.

Conclusions

In the study, we reproduced the semantics of high school teachers' ideas about their profession at the moment. We noted the importance of understanding the profession for a university teacher for greater meaning and awareness of being in the profession. We revealed the connection and interpenetration of ideas about the profession with the image of the profession. The semantics of ideas about the profession of a teacher can be considered an indicator of the image of the profession. Then we moved on to what motivates and guides a teacher, namely the values and meanings of the specialist profession. We considered values as an important concept of psychology that has a long tradition. We emphasized that the main approach that was the starting point for us was the Schwartz approach, which in the study of many countries identified 10 core values that are manifested in different cultures. They point to various aspects of a professional's life and reveal the main directions for the development of his personality.

For us, it was important that meanings guide values, and values influence ideas about the profession of specialists. As a result of the research, we were able to differentiate groups of teachers according to their ideas about their profession and attitudes. These were positive views and neutral ones. It should be noted that there were no teachers who would have rated the profession at the highest rank. Many teachers noted the negative aspects of modern higher education.

The teachers with a neutral attitude to the profession rated it more powerful, and teachers with a positive attitude to the profession rated it emotionally rich. Both groups noted activity in this profession.

In the group with positive ideas about the profession, the following value-semantic components were identified: the values of independence, achievement, security are combined with the life meanings of altruism, cognitive and family. This may indicate that it is important for teachers of this group to self-lessly serve their cause and achieve certain results.

In the group with a neutral attitude to the profession, teachers show the following features of the value-semantic sphere: conformity, hedonism and security are combined with the life meanings of hedonism, status and family. It is noteworthy that both in values and in meanings, the teachers of this group are similar in their hedonistic orientation. Therefore, they are extremely focused on getting the maximum pleasure from their profession. This result may explain a slight decrease in positive perceptions of their profession among teachers in today's unstable working conditions in higher education.

We see prospects for further research in the fact that the values and meanings of ideas about the profession of teachers of different generations will be compared. We will compare the results of teachers from different regions of Russia.

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Conflict of interests

The author declare no conflict of interest.

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War Lessons or How Social and Personal Back-Ground Shapes Our Perception

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Abstract: It is well-known that cognitive metaphor can reflect the process of conceptualization of the surrounding world in the human mind. The metaphorical transfer of the source domain's conceptual features to the target domain shows the essence of the reality perception in the consciousness. This study is focused on the intracultural variation of cognitive metaphors, particularly the phenomenon of the implicit-explicit dispersion in metaphors, dependence of their perception on the occupation, gender, and age of members of a culture, and type of metaphors. Based on conceptual metaphors, associated with the target domain WAR in the Russian culture, the researchers elaborate a novel approach to the analysis of conceptual metaphors, providing full-fledged scrutiny of the reflection of the surrounding realm in the minds of native speakers. The study involved 124 people, some of whom have direct professional experience in the military sphere. The obtained differences in the perception of simulated metaphorical models allow us to talk about intracultural variation of the WAR cognitive metaphor and the significant influence of personal experience on the perception of reality.

Keywords: cognitive metaphor, metaphor perception, metaphor dispersion, conceptual mapping, metaphorical modeling.

Introduction

The concept of WAR is one of the closest to the Russian culture, as the whole history of Russia is permeated with wars, both defensive and offensive in nature. It is not fortuitous that German Chancellor Otto von Bismarck said, "Join alliances with anyone, unleash any war, but never touch the Russians."

In this regard, it seems relevant to delve into a more detailed study of the WAR concept in the Russian culture, use achievements of modern linguistics and conceptual metaphorology for a deeper analysis of the substance of the conceptual sphere WAR in the Russian mentality.

It's worth mentioning that a remarkable amount of research is devoted to the WAR metaphor in public political discourse (Flusberg, Matlock and Thibodeau, 2018; Logachev, 2014; Budiman, 2019), some analyze the implementation of WAR metaphor regarding to economics, trade, medicine and other spheres (Hu and Xu, 2017; Mavleev and Fomin, 2019). Studying metaphor models of the Armed Forces is also quite popular (Izdebska, 2016; Kalinin, 2018).

In modern cognitive linguistics it is considered reasonable that specific manifestations of conceptual metaphors depend on certain cultural features of native speakers in different language systems. Prof. Z. Kövecses says, "Metaphors can also be variable, and they vary along two major dimensions: the cross-cultural and the within-culture dimension." (Kövecses, 2005: 13).

The former, denoting differences in the conceptualization and categorization of the social realm by representatives of various social cultures, has been studied for a while. Among numerous studies accumulated in the world the focus has been made mostly on differences in cognitive models within one phenomenon (Boroditsky, 2001; Charteris-Black, 2003; Kimmel, 2004).

In line with this comes an experiment by Musolff, who outlined the results in his paper Cross-Cultural Variation in Deliberate Metaphor Interpretation (Musolff, 2016). The idea was to quiz respondents from 10 different countries, belonging to various language cultures, to explain the conceptual metaphor NATION is a HUMAN BODY. To this end the researcher asked to elaborate the metaphorical expression NATION is BODY POLOTIC based on the assumptions of a specific culture. This yielded a diversity of interpretations, none of them being obvious within the scope of the classical theory of conceptual metaphor.

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On the contrary, many of the participants, paying attention to the metaphorical nature of the saying, tried to extrapolate their cultural and historical back-ground to it to emphasize the pragmatic impact. Thus, Chinese mostly referred to the country's geography, while Europeans based their deliberations on the state structure. The source domain of Americans turned out to be their national diversity (Musolff, 2016: 212).

Not least interesting is L. Boroditsky's research, focused on the time concept i上个月ıese and English. She demonstrated that words denoting spacial characteristics along a vertical axis in Chinese (Chinese for previous month, literally top month) shapes a specific approach to the perception of time in this social culture, i.e. along a vertical axis, as opposed to the horizontal practice in the Western culture (for example, before the weekend) (Boroditsky, 2001).

The within-culture dimension has been in the focus of various studies as well. There is a trend for various metaphorical models to have different realizations within one language community, either polycultural, like in the U.S., or monocultural, one finds in Japan. However, metaphorical models are subject to diachronic changes, i.e. they can evolve over time. (Hiraga, 1991; Kövecses, 1995; Micholajczuk, 1998). Z. Kövecses says, this dimension, influenced by a number of factors, can be broken down into social, religious, subcultural, ethnic, etc (Kövecses, 2005: 89). There are scores of examples of the metaphorical variation within a culture; unaware of the fact we face them time and again: men of various social background tend to have different metaphorical approaches in describing their relation with the opposite gender, people belonging to different subcultures have different attitudes to such notions as honor, dignity, and morality. This phenomenon is attributed to the difference in experience, accumulated in a lifetime.

Besides, there is another aspect of the within-culture dimension, namely interpersonal, governing the use of a specific set of metaphorical models prompted by one's personal experience. Supporting this is a piece in the Time magazine, noted by Kövecses in his monography. It dwells on sports metaphors, which are of a similar type, though different in terms of their realization, in the rhetoric of U.S. presidential candidates in 1996. B. Clinton, being an enthusiastic golfer, referred to golf as a source domain, while Al. Gore, who used to lead a high school rugby team, compared the presidential race to a dash on the pitch (Kövecses, 2005: 183).

Meanwhile, the focus of metaphorology shifted to the study of the dependence of the realm conceptualization in languages on various cultural and social factors. However, there are still unanswered questions, posed by Kövecses as to the reasons behind the interand intracultural variations of metaphors. (Kövecses, 2005; 2016).

A major role in the cultural and cognitive conceptualization is attributed to experience and language preferences. "In other words, the suggestion is that, on the one hand, many of our metaphors vary because our experiences as human beings also vary. And, on the other hand, our metaphors vary because the cognitive preferences and styles we put to use for the creation of abstract thought also vary (Kövecses, 2005: 231)." The former encompasses both social and personal experience, which falling under the human factor category, while the latter is dictated by a communicative situation, i.e. personal and social context existing at a given moment.

True to the division set up by Z. Kövecses in his Metaphor in Culture, this research will dwell on social and personal experience of representatives of the Russian social culture, checking the conceptualization of war and its variations among respondents, possessing a various degree of involvement into the military realm.

Another crucial issue, which have been picked to look into, is the perception of metaphors in the conscience of a social culture member. Obviously, when facing standard patterns, e.g. LIFE is an ADVENTURE, the comprehension by natives can be fathomed, since the pattern offers a ready cognitive solution. However, the approach will hardly be applicable to Grady's primary metaphors, e.g. SUCCESS is TOP (Grady, 2005). Forms of implementation of metaphors in sentences can be analyzed as well. What is suggested is an approach, which can be referred to as "level or implicit/explicit driven perception of conceptual metaphors." The level approach stipulates that verbalized metaphors (explicit) and their meaning in specific sentences (implicit) may or may not coincide in terms of their perception by natives.

Based on the provisions of cognitive linguistics on the close connection between language and thinking and, by implication conceptualization of thinking in language through cognitive metaphors, as well as linguistic culturology on the relationship of language and culture, it is assumed that segmented professional-oriented study of the perception of cognitive metaphors in the context of personal and social background, and research of the plane of expression of conceptual metaphors will allow us to make a small contribution to the further development of the Conceptual Metaphor Theory.

Materials and methods

The study is based on two source hypotheses:

1. Conceptual understanding of the phenomena of social and political life, manifested in the formation of cognitive metaphorical models, depends on the professional, cultural and life experience of a particular social culture member and may differ within a single linguistic group.

2. Explicit and implicit planes of conceptual metaphors do not always coincide.

Thus, in this study was made an attempt to further deepen the understanding of conceptualization processes in objective reality with due consideration of the dependence of the process on the occupation and background, as well as the analysis of the reality conceptualization, both extraneous and profound.

The object of the research is conceptual metaphors in the target domain WAR in the minds of speakers of the Russian culture, while the subject is the adoption of specific linguistic forms of conceptual metaphors in the target domain WAR and various source domains.

Based on one methodology, the research pursues two multidirectional, but equivalent goals:

1. to establish the dependence of the degree of acceptance of conceptual metaphors by culture members on their professional characteristics,

2. to identify the degree of dependence of the acceptance of explicit and implicit planes of the expression of conceptual metaphors.

This study is undoubtedly based on the basic tenets of the Theory of Conceptual Metaphors set forth in writings of J. Lakoff and M. Johnson (Thorne, 1983; Lakoff, 2008; Wagner, 1990).

For the sake of better understanding, it needs briefly recall that the theory says the backbone of metaphorization is the process of interaction between knowledge structures, a.k.a. frames according to Lakoff & Johnson, of two conceptual domains, i.e. source and target. That is, the source domain meaning is projected to the target domain, where, under the influence of various cognitive and social factors, it acquires a new meaning, which becomes a metaphor.

In other words, what takes place is a unidirectional metaphorical mapping from the source to the target domain, both shaped by human interaction with the surrounding realm.

Thus, based on the postulates of the classical theory, the opposite conclusion can be drawn that if a metaphor is the result of human interaction with the surrounding realm, then by analysing the metaphor this interaction can be understood. At the same time, one can assume that different social groups have different interactions, so their perception of the content of conceptual metaphors will be different.

To confirm the assumptions, the study of the perception of conceptual metaphors of the target domain WAR in the Russian culture was conducted. To this end K. Ahrens's Conceptual Mapping Model was adopted (Ahrens, 2010).

The methodology breaks down in several reciprocal stages:

1. Selection of source domains for the WAR domain,

2. Development of a verbal matrix of speech realization of each metaphor,

3. Interview of respondents divided into three groups: Civilians – people who never served in the military and did not participate in armed conflicts (Civ), Military – people who have logged at least three years in the military, but did not take part in armed conflicts (Mil), Veterans – people who participated in armed conflicts (Vet). In the latter it was allocated a subgroup of people, namely Professionals (Pro), who saw hostilities in the toughest places, e.g. Chechnya, Afghanistan, Georgia, etc., and whose combat experience lasted at least a year. These are professional service members, whose ultimate role is in taking part in battles.

4. Summarizing and data analysis.

Each stage includes several steps. For selection of source domains, K. Ahrens's Conceptual Mapping Model was adopted (Ahrens, 2010). This was done by specialists in the field of linguistics, cognizant of the conceptual metaphor phenomenon and possessing considerable language skills and knowledge. The expert group consisted of a doctor of pedagogy (specialized in linguistics), two linguists holding a PhD degree in philology and a PhD student pursuing a degree in linguistics.

This stage encompassed:

1) Brainstorming, during which each expert came up with the maximum number of viable, but explainable and existing as well, source domains for one target domain.

2) Grouping of the shortlisted domains based on the semantic principle and their plausibility study (checked are their adequacy and the plausibility of being part of the language system). The recognition of a specific source domain as a possibility is by a majority of the experts, in our case it had to be at least 3 to 4.

Six most relevant source domains for the WAR target domain were identified: WAR is a GAME (D1),

WAR is a THEATER (D2), WAR is a COMPETITION (D3), WAR a GAMBLE (D4), WAR is a LESSON (D5), and WAR is DEATH (D6).

It is noteworthy that the first four domains in general terms coincide with the data provided by researchers of the conceptual metaphor WAR in other languages (Logachev, 2014). While the other two, included in the list by the collective decision of the expert group, can be considered relevant to the Russian culture.

The development of the verbal matrix also largely relied on the expert group, which was to clarify specific linguistic content of the selected source domains to generate a verbal matrix for the research. The main steps of this stage are as follows:

1) Clarification of the connection of the source domains with the surrounding realm by brainstorming questions: "What are real manifestations of the shortlisted domains?", "What qualities are inherent in the domains?", "What can the domain do/what is it used for?"

2) Generation of specific sentences on the basis of the target domain and suggested source domains. For each source domain, compiled were four sentences, two of which can be attributed to conventional metaphors (CM), and the other two to new, anomalous metaphors (NM).

This ratio was essential for achieving two goals, that of this paper and confirmation of the K. Ahrens hypothesis about the connection of the language norm with the perception of speech manifestations of conceptual metaphors (Ahrens, 2010).

3) Clarification of the relationship of metaphorical modelling with the surrounding realm. Here the same questions were directed at the target domain: "What are real manifestations of the target domain in the source domain?", "What qualities, inherent in the source domain, are related to the target domain?", "Which of the uses of the source domains can manifest themselves in the target domain?"

4) Correlation of results and clarification of the content of the verbal matrix.

Below is the verbal matrix confirmed for an experiment:

Table 1

Verbal matrix for a linguocognitive experiment

Sentence	Source domain / Metaphor Type
1) We lost this battle, but won the war.	D1 / CM
2) This battle went down a wrong scenario.	D2 / CM
3) We managed just to win the arms race.	D3 / CM
4) We grew so used to battles, we could not stop, the war attracted us as the best casino.	D4 / AM
5) The enemy gave us difficult homework.	D5 / AM
6) The war has become a mass grave for the whole of our generation.	D6 / AM
7) The use of chemical weapons is not a fair game.	D1 / CM
8) The theatre of war covered whole Europe.	D2 / CM
9) We managed to prevail in this battle by fighting intensely.	D3 / CM
10) We hit the jackpot, seizing enemy's warehouses full of weapons.	D4 / AM
11) This fight proved to be the best teacher for young fighters.	D5 / AM
12) After the battle, we looked at each other as if we were dead men walking.	D6 / AM
13) The troops moved around the battlefield as if they were playing Cowboys and Indians.	D1 / AM
14) In this fight, we were forced to play the role of the proverbial pug that barks at the elephant.	D2 / AM
15) There was a feeling in the battle that we were running a race against the enemy, trying to be the first to take the height.	D3 / NM
16) Stakes in this battle were too high.	D4 / CM
17) Heavy losses in yesterday's battle taught us to better prepare for the offensive.	D5 / CM
18) Our deadly weapon hit the enemy like a ton of bricks.	D6 / CM
19) The generals moved regiments and battalions as chess pieces.	D1 / AM
20) During the war, mothers were left not much choice by to be spectators of the cruel play starring their children.	D2 / AM
21) The captured village passed from hand to hand like a ball in volleyball.	D3 / AM
22) In this battle, we are all put in the line of fire.	D4 / CM
23) We needed to solve a difficult task in this battle.	D5 / CM
24) A deadly silence reigned on the battlefield.	D6 / CM

The third stage consisted of an interview of respondents, divided into several categories based on the principle described above. A total of 124 people took part in the survey.

Table 2
Distribution of respondents through groups

Group	Civilian	Military	Veterans	Professionals
Number of people	70	27	27	15, veterans included

The respondents were also broken down by age and those in the Civilian group by gender, which added substance to the research. The former breakdown resulting in 32 people in a 17-25 age group, 56 in a 26-39 age group and 35 in an age group of 40 and older, generally reflects the age stratification of the Russian society. The civilians included 31 men and 39 women, which also correlates with the gender composition of the Russian society.

The composition of the group of respondents proved to be instrumental in carrying out a multi-dimensional study of the conceptual metaphor WAR in the Russian culture, encompassing several aspects:

A. Dependence of the perception of metaphors on the form of realization, i.e. conventional and new metaphors,

B. Dependence of the metaphorical perception on the occupation and background,

C. Dependence of the metaphorical perception on gender and age,

D. Difference in the explicit and implicit metaphorical perception.

Interviews of respondents were conducted through questionnaires on-line via Google.Forms and off-line. The e-questionnaire and its hard copy were com-pletely identical, providing equivalent results.

The questionnaire contained two tasks:

1 – fathoms the perception by the participants of specific language forms of realisation of different source domains for the target domain WAR. The recipients had to measure the adequacy of the suggested sentences on a scale of 1 to 10 based on their linguistic background. The wording of the task read: “Please rate from 1 to 10 the likelihood of your using such a sentence, where 1 is the least likely scenario and 10 will account for the use of the saying or at least a similar one.”

2 – analyses the perception of the explicit aspect of a conceptual metaphor, i.e. the participants had to express their agreement or disagreement with a saying consistent with WAR IS GAME / THEATER / DEATH, etc. on a scale of 1 to 5, where the extremes stand for complete disagreement and agreement respectively.

Results and discussions

Above, it was indicated that this study, focused on a range of theoretical and utilitarian goals, had also to check a number of basic and additional hypotheses. Here the results for each of them will be described.

Dependence on the form of realization

K. Ahrens has already analysed differences between conventional and anomalous metaphors (Ahrens, 2010). The researcher analysed perception of metaphors, shrouded in language forms, and empirically proved that the classic Theory of Conceptual Metaphors allows insufficient attention to the conventional or novel nature of metaphorical expressions, thereby refuted the Theory of Primary Metaphors, suggesting that the choice of the source domain for a target domain is dictated by a variety of social and cultural factors. Due to the great variability in the realization of anomalous metaphors, K. Ahrens believes that when analysing conceptual metaphors, it is impossible to claim a universal nature of conceptual linguistic understanding, while the metaphorization process, considered as a reflection of cognitive abilities of a person, depends on the cultural environment and context to a large extent (Ahrens, 2010: 201).

In general, the research confirms the results of K. Ahrens. Further analysis shows that conventional metaphors are unequivocally perceived more adequately than new ones, regardless of the source domain and occupation of the participants:

Table 3
Distribution of the results of the CM & AM reception broken down by source domains and groups of recipients

Group	D1 (CM/ AM)	D2 (CM/ AM)	D3 (CM/ AM)	D4 (CM/ AM)	D5 (CM/ AM)	D6 (CM/ AM)	Total (CM/ AM)
Civ	7.3/5.2	6.2/4.9	6/4.7	7.3/3.8	7/4.1	6.6/5.7	6.7/4.7
Mil	6.6/3.7	5.8/3.1	6/3.3	6.1/3.5	7/3.3	5.9/4.2	6.2/3.5
Vet	6.4/4.4	5/4, 4	5.2/4.8	6.1/3.6	6.2/4.3	4.8/5	5.6/4.4
Pro	5.9/4.4	5.3/4.5	5.3/5.3	5.8/3.5	6.6/5.6	4.2/5	5.5/4.7
TOTAL	**6.9/4.7**	**5.9/4.4**	**5.8/4.4**	**6.8/3.7**	**6.8/3.9**	**6.1/5.2**	**6.4/4.4**

The chart suggests that in almost all cases CM (conventional metaphors) are perceived more adequately than AM (anomalous metaphors). The total difference in perception of the two types of metaphors ranges from 0.9 for D6 (WAR is DEATH) to 3.1 in D4 (WAR is a GAMBLE). This indicates that the source domain DEATH for the conceptual metaphor WAR in the Russian culture is more universal and less dependent on the form of realization in the speech.

However, a variation in the CM/AM difference between the groups of respondents was registered. For example, in the source domain GAMBLING, the CM/AM difference in the group Civilians is 3.5, while the Military group clocked in at 2.6, followed by 2.5 registered in the Veterans group. The lowest indicator belongs to the Professionals, who showed a difference of 2.3. The difference in the domain DEATH for the Civilians, Veterans and Professionals turned out to be 0.9, 0.2 and 0.8 respectively.

The dependence is very clear: the deeper the metaphor gets into the WAR domain, the smaller the difference in the perception of conventional and anomalous metaphors. This confirms the thesis about the connection between the perception of metaphors and the background of representatives of a specific culture.

Occupation and background dependence

Readers will remember that the main hypothesis of the study is the thesis that perception, i.e. mental perception, pertaining consent of a culture member to one or another form of conceptual understanding of objective reality, expressed through a conceptual metaphor, depends on the occupation and background the recipient.

It is to this end that all experiment participants were divided into four groups according to their occupation. The results of the experiment are as follows:

Table 4
Perception of conceptual metaphors depending on the occupation and background of the recipients

Group	D1 (CM/AM)	D2 (CM/AM)	D3 (CM/AM)	D4 (CM/AM)	D5 (CM/AM)	D6 (CM/AM)
Civ	6.2	5.6	5.3	5.5	5.5	6.1
Mil	5.1	4.5	4.6	4.7	5.1	5
Vet	5.4	4.7	5	4.9	5.2	4.9
Pro	5.1	4.9	5.3	4.6	6	4.6
TOTAL	5.3	4.6	4.8	4.8	5.2	4.9

The table confirms the hypothesis but only partially. Of course, there are differences in the data, but these gives no firm ground to claim any reasonable regularity.

In general, the level of perception of conceptual metaphors among the Civilians is somewhat higher than in the others. Among the most interesting conclusions made in this block are the more obvious differences between the Civilians and Professionals, whose backgrounds are poles apart. The former have nothing to do with the military and war, while the latter on the contrary are almost entirely devoted to combat operations. It is noteworthy that the Civilians are more susceptible to metaphors based on the source domains GAME, DEATH, and GAMBLE, and the Professionals – to metaphors deriving from the LESSON domain. After all, there is a certain dependence of conceptual mapping on the background. People, who fight for a living, more clearly understand that a war can teach a lesson, they made their own

conclusions and gained their share of experience. At the same time, they are less perceptive to the war as a "game" or "gambling" for that matter.

Thus, the observation warrants a conclusion that the background has a greater impact on the process of perception of conceptual metaphors, and by implication the comprehension of objective reality, than professional affiliation.

Gender and age dependence

The approach to the selection of participants provides for an analyse of the impact of gender and age on the metaphorical perception. Though, initially there was no such a goal, the conditions turn out to be right for this. Given the fact, it makes no sense to avoid the opportunity. Here what the research provides:

Table 5
Perception conditioned by age

Age group	D1 (CM/AM)	D2 (CM/AM)	D3 (CM/AM)	D4 (CM/AM)	D5 (CM/AM)	D6 (CM/AM)
17-25	7.3	6.9	6.7	6.5	5.6	7.2
26-39	5.7	5.2	5.1	5.5	5.5	6.2
Over 40	6.1	4.9	4.5	4.6	5.6	5.3

Table 6
Perception conditioned by gender

Gender group	D1 (CM/AM)	D2 (CM/AM)	D3 (CM/AM)	D4 (CM/AM)	D5 (CM/AM)	D6 (CM/AM)
M	5.8	5.4	5.5	5.8	5.7	6.2
F	6.5	5.7	5.2	5.3	5.4	6.2

The comparison based on gender demonstrates no obvious differences: some source domains are better perceived by women, others by men, and there are several in between them. Thus, it is impossible to draw any meaningful conclusions.

However, the degree of perception of language expressions of conceptual meta-phors conditioned by age demonstrate that younger participants in the experiment are prone to a higher level of metaphorization, although their background is less profound and obviously less likely to encompass an objective reality of war. One can assume that this result is accounted for by an objective psychological attitude, attributed to a higher level of emotionality, hence the desire for better apprehension and awareness among the younger generation. We believe that a similar situation will arise in the analysis of other source and target domains of conceptual metaphors, should any be attempted. However, this assumption requires more detailed empirical verification.

Difference in explicit & implicit perception

This research logic implies further efforts to fathom the dependence in the perception of explicit and implicit planes of conceptual metaphors.

To this end the questionnaire included two section. One comprised sentences, concealing conventional and anomalous metaphors, based on conceptual metaphors focused on the target domain WAR. By implication, these constituted an implicit potential. The other part of the questionnaire included verbalized forms of conceptual metaphors based on the pattern "WAR is X", where X was the source domain in question. These essentially had a profound explicit distinction.

Having compared the results of perception of both forms of conceptual metaphors by the respondents, it was established so called "dispersion" between implicit and explicit planes, expressed in a percentage of the numerical values of both planes. For example, in D1 (WAR is a GAME), the perception of implicit meanings (sentences) clocked in at 5.3, while that of the explicit plane (pattern) turned out to be 2.25. Here what it generally says: 5.3 (53 percent of the maximum value of 10) – 2.25 (45 percent of the maximum value of 5) = 8 percent, i.e. the dispersion value is 8 percent.

Since such an analysis has either not been carried out, or its results are not widely known and have not been discovered by us, any exact conclusion as to which value of the dispersion will be normal

and which is anomalous cannot be drawn. One thing is obvious – the greater the value, the wider the gap between the planes of expression in people's minds, which indicates at least instability of a certain conceptual metaphor in people's minds or dissonance and problematic perception of objective reality by members of a culture in the extreme.

Table 7
Explicit and implicit expression of conceptual metaphors

Group	D1 (CM/AM)	D2 (CM/AM)	D3 (CM/AM)	D4 (CM/AM)	D5 (CM/AM)	D6 (CM/AM)
Civ – Imp	6.22	5.57	5.32	5.5	5.52	6.17
Civ – Ex	2.51	2.18	2.92	2.04	3.66	4.79
Civ – Dispersion, %	**11.9**	**11.9**	**-5.18**	**14.13**	**-17.94**	**-34.18**
Mil – Imp	5.17	4.48	4.65	4.77	5.16	5.05
Mil – Ex	2.32	2.26	2.58	2.05	3.57	4.588
Mil – Dispersion, %	**5.35**	**-0.44**	**-5.08**	**6.63**	**-20.00**	**-41.11**
Vet – Imp	5.40	4.69	5.02	4.88	5.24	4.88
Vet – Ex	2.185	1.78	2.37	2.26	3.92	4.59
Vet – Dispersion, %	**10.36**	**11.37**	**2.84**	**3.62**	**-26.06**	**-43.06**
TOTAL – Imp	5.28	4.58	4.83	4.82	5.20	4.96
TOTAL – Ex	2.25	2.02	2.47	2.15	3.75	4.58
TOTAL – Dispersion, %	**7.85**	**5.46**	**-1.12**	**5.12**	**-23.03**	**-42.09**

Here in the table are some peculiar patterns. For one thing, in D1-D4 the dispersion is insignificant, basically it is well within the range from -10 percent to 10 percent. What it implies for future studies is that we believe that this dispersion is normal, i.e. there is no statistically significant difference between explicit and implicit planes. In other words, if the dispersion in D3 (COMPETITION) is -1.12 percent, then it can be assumed that the respondents perceive the speech expression of the conceptual metaphor and its verbalized pattern the same way. This testifies to the normal perception of the object of reality, conceptualized through the metaphor and the stable nature of the cognitive metaphor in the conceptual domain in question.

There is also an obvious difference in the dispersion of the implicit and explicit planes between the groups of respondents: in more professional groups, the value is slightly lower throughout more source domains, which indicates a more adequate perception of the realities of war.

And the most striking and illustrative result is a high level of dispersion in D5 (LESSON) – 23 percent and D6 (DEATH) – 42 percent. A detailed analysis of these results suggests that the values of perception of the implicit plane, i.e. specific language realisations of conceptual metaphors, are about the same as in the other sources domains. However, their explicit perception is significantly higher than in the other domains, attesting to such a high value of dispersion.

Translating these into more utilitarian results, one can argue that members of the Russian culture obviously agree that WAR is a LESSON, and WAR is DEATH, but this metaphorical meaning has not yet been fixed in their consciousness. In other words, they understand that war is "a lesson that one must learn" and that "war most certainly leads to death", but they are not aware of this to a certain extent. Each of the respondents a priori agreed with the patterns, but their language implementation lags far behind from the perception point of view, both with conventional and anomalous metaphors. This attests to that the pattern is not fixed in consciousness yet, an obvious discord in the Russian mentality.

Statistics verification (Student's T-test)

To verify the statistical value of the results, a decision was made to run the hypothesis of the personal and social background impact on the perception of metaphors and by implication the cognitive system of actors within a specific culture through a statistical test.

To this end, one of the most common methods, namely Student's T-test was picked, a 2-sample comparison of median values.

The test was ran twice:

1) for the interviews of the Civilian and Military groups,
2) for the interviews of the Civilian and Veteran groups.

The t-value has been calculated for each source domain.

It would not be out of place to revise the test principle. It is about boiling down a set of numbers to a t-value by the use of the formula:

$$t = \frac{M_1 - M_2}{\sqrt{m_1^2 + m_2^2}}$$

where M1 and M are the median values of the first and second sets of numbers respectively, and m1 and m2 are mean errors of the first and second simple means. Then the degree of freedom f was calculated, which is based on the number of participants in each group. In our case the number of respondents was multiplied by four, since one set covered all four sentences related to one source domain.

After getting t and p we ran them through critical value tables available on-line to establish a confidence level. For humanitarian sciences it stands at 5 percent, which, projected to the research, sets the threshold at 1.969. Everything that scores above it in this study will be considered statistically significant.

Below are results of the statistical verification:

Table 8
Distribution of t-values through samples

	D1	D2	D3	D4	D5	D6
Civ/Mil	2.975438, 663	3.1847922 24	2.0113547 6	2.0792587 33	0.9900186 52	3.254099, 854
Civ/Vet	2.164334, 686	2.3380113 05	2.3380113 05	1.6736656 73	0.7355909 95	3.400722, 994

The table suggests that nine out of 12 t-values are above the threshold, confirming that the critical error is less than 5 percent. Though far from being ideal, the results are still statistically significant.

Discussion

1. The conceptual sphere WAR and its implementation in the minds of members of the Russian culture through conceptual metaphors is a complex, multilevel system, shaped by specific historical and cultural characteristics of the peoples inhabiting Russia.

2. The respondents in the group Professionals, i.e. military professionals, are more susceptible to metaphorical models WAR is a LESSON and WAR is DEATH.

3. All subjects showed approximately the same level of difference in the perception of CM (conventional) and AM (anomalous) metaphors, nevertheless the respondents, whose background has more to do with the military, demonstrated a smaller level of difference.

4. Throughout all groups, there is a dependence on age in the degree of perception of metaphors: younger respondents are more susceptible to metaphors than their older colleagues. This said, there was no dependence on gender.

5. Unlike the Civilians, those in the groups Military and Veterans demonstrated a smaller implicit-explicit dispersion in the domains GAME, COMPETITION, THEATER, and GAMBLE, and the opposite trend in the remaining two domains, namely LESSON and DEATH.

6. The high level of the explicit-implicit dispersion of conceptual metaphors in the LESSON and DEATH sources domains demonstrates instability of these metaphors, their incomplete or fragmentary, or even superficial understanding by members of the culture.

Conclusions

1. The proposed method provides for a multilevel analysis of conceptual metaphors in the minds of members of a particular culture.

2. The perception of linguistic realisations of conceptual metaphors depends on the form, conventional or anomalous.

3. The perception of linguistic realizations of conceptual metaphors depends more on the background and age rather than occupation and gender.

4. The quantitative estimation of the explicit-implicit dispersion of conceptual meta-phors demonstrates:

a) a normal value of -10 percent to 10 percent,

b) the fact that a high level of dispersion may be attributed to the instability of a conceptual meta-phorical model.

Research outlook

This study is open to any kind of criticism and elaboration. Sharing the belief that the proposed methodology for comparing the perception of conceptual metaphors in different cultures can deepen the understanding of the mentality of different peoples, we will welcome further attempts to take up the thread of the study in a comparative historical manner.

Besides, we believe that for better and more accurate conclusions needed is further research on the comparability of the explicit and implicit planes of conceptual metaphors based on advanced neuropsycholinguistic equipment.

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Conflict of interests

The authors declare no conflict of interest.

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A Content and Citation Analysis of the Studies on Learning Environments and Special Education

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Abstract: This study aims to review the studies on learning environments and special education and determine the trends in these studies. Content and citation analysis were used which is a qualitative research method. Data of the study were collected from Scopus with 'learning environment' and 'special education' keywords 180 documents were collected. For the analysis of the published documents, previously determined content analysis criteria were used and citation analysis of the published documents were carried out, in order to reveal the frequently cited documents. Documents were examined based on year of publication, name of the journals, authors, affiliations, countries, document type, subject area, keywords, language and citations. Data were presented and interpreted with tables and figures. Results were presented in detail with reference to the previous literature.

Keywords: Learning environment, evaluation, special education, content analysis, citation analysis.

Introduction

Educational opportunities provided to students with special needs are increasing day by day and more students in the last decade benefit from these possibilities (Coskun and Mitrani, 2020; Lewis, Wheeler and Carter, 2017). In the past, when it comes to education of students with special needs, it was considered that education should be in separate schools and students would be placed in schools or special education classes. On the other hand, mainstreaming and inclusive practices have increased in recent years and students with special needs have the opportunity to receive education with their peers and participate in social life more frequently (Gozun and Yikmis, 2004; Kaya et al., 2017). In order to meet the educational needs of individuals in need of special education, instructional practices are adapted for them in line with their diagnosis, disability characteristics and needs (Akcamete, Kayhan and Yildirim, 2017; Ozcan and Merdan, 2016).

The aim of the training of special needs individuals is to ensure that individuals with special needs are as independent as possible in their lives and that they can maintain a qualified life (Ardic, 2014). Special adaptations are required for educational environments for children with special needs. Therefore, in order for their needs to be met, it is necessary to know well who these children are and how their needs will be met. The characteristics of the individuals in the total disability group show differences. Dixon et all., (2014) stated that it is very important to know the characteristics of the individuals well, to evaluate the individuals correctly, to determine the performance levels well, to place them in the appropriate educational environments, to prepare the appropriate training programmes and to support them.

Evaluation in special education is the process of collecting data to determine the academic, behavioural or physical characteristics of individuals and make decisions according to those characteristics. It includes the systematic compilation of important information in terms of education to be used to make legal and educational decisions regarding the provision of special services and determine learning objectices (Avcioglu, 2016; Bateman and Bateman, 2014). Today, evaluation in special education is shaped by the individual needs of each student with special needs. After an appropriate evaluation process and decision regarding the needs of the students with special needs, individualized education programmes will be prepared to increase and improve the performance level of the students to be able to gain functional skills, live and maintain their daily lives independently. Learning environment is

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very important for improving learning and teaching practices (Ince and Costu, 2018) and based on a comprehensive evaluation process, learning environments could be designed and prepared for students with special needs. In addition, Sancar, Tozkoparan and Odabasi (2017) reviewed content analysis of scientific articles on the use of mobile technologies in special education.

According to the regulation of special education services in Turkey and based on the various legislations worldwide, educational evaluation and diagnosis are done at an early age (Milli Egitim Bakanligi, 2006; Sahin and Koca, 2017). Educational evaluation and identification are achieved through assessing the individual's characteristics in all developmental areas and their academic qualifications in the disciplinary fields and educational needs together. It is very important to provide physical, social, educational and psychological care for the individual in the most appropriate environment (Mostafa, 2017).

In recent years, one of the most discussed topics in the field of special education has been the provision of services in the least restrictive environment. The least restrictive educational environment principle is that needs of students with special needs should be placed in an educational environment that will ensure that it will meet the needs of the students in the most appropriate ways. Individual learning environments need to be sufficient and inadequate for the needs and characteristics of the invidiuals with special needs (Crockett and Kauffman, 2013; Taylor, 2004; Sabayleh and Alramamneh, 2020).

Educational evaluation is also a part of the ongoing interdisciplinary effort to understand the needs of individuals with special needs. Evaluation in special education is a teamwork and this team involves a special education teacher, a psychologist, a speech therapist and other professionals working in the field of special education (Howe and Miramontes, 2015; Uzunboylu et al., 2017). As it can be seen, the evaluation process and learning environments in special education have a crucial place. Therefore, examination of the results of scientific research on this subject and identification of trends in this area will reveal the current situation and development, and it is expected that this would provide a guidance for further special education research and practices, especially in terms of providing appropriate learning objectives and environments for individuals with special needs. Therefore, this study aims to review the studies on learning environments and special education and determine the trends in these studies.

Materials and methods

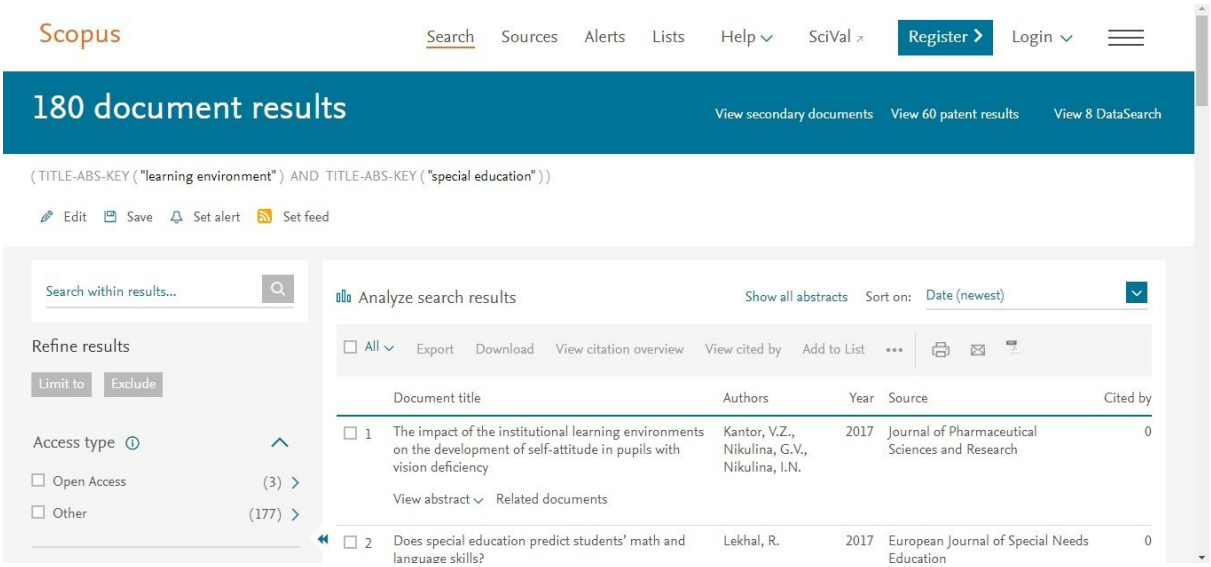
Research model

Content analysis and citation analysis as one of the most frequently used qualitative research methods were used in this study. According to Vasiliene-Vasiliauskiene et al., (2020), Cohen, Manion and Morrison (2007), content analysis is the process of summarizing and expressing the basic contents of the verbal or written information and the messages they contain. It is aimed to reveal the hidden truths contained in the data and definition of the data through content analysis (Gulbahar and Alper, 2009; Inaltekin, 2020). Content analysis involves four stages: processing of qualitative research data obtained from documents, organisation of the data and interpretation of findings (Zaid, 2020; Uzunboylu and Beheshti, 2017). Nevertheless, citation analysis has become prevalent as a parameter for evaluating the quality of published research in a specific field, and it reveals the historical and current situation of the research in that field (Atilgan, Atakan and Bulut, 2008; Leung, Sun and Bai, 2017).

Data collection

Data of the study were obtained through searching Scopus with 'learning environment' and 'special education' and relevant documents were included in the study. Learning environments and special education search page in Scopus is provided in Figure 1.

Figure 1.
Learning environments and special education search page screen in Scopus



Data analysis

Content analysis criteria were indicated to review the collected data. The criteria were year of publication, name of the journals, authors, universities, countries, document type, subject area, keywords and language. In addition, most cited papers were also identified and mentioned in the results.
180 documents were analysed based on the collected data. Results were examined according to content analysis criteria.

Results

Distribution of the published documents based on the year of publication

Figure 2.
Distribution of the published documents based on the year of publication

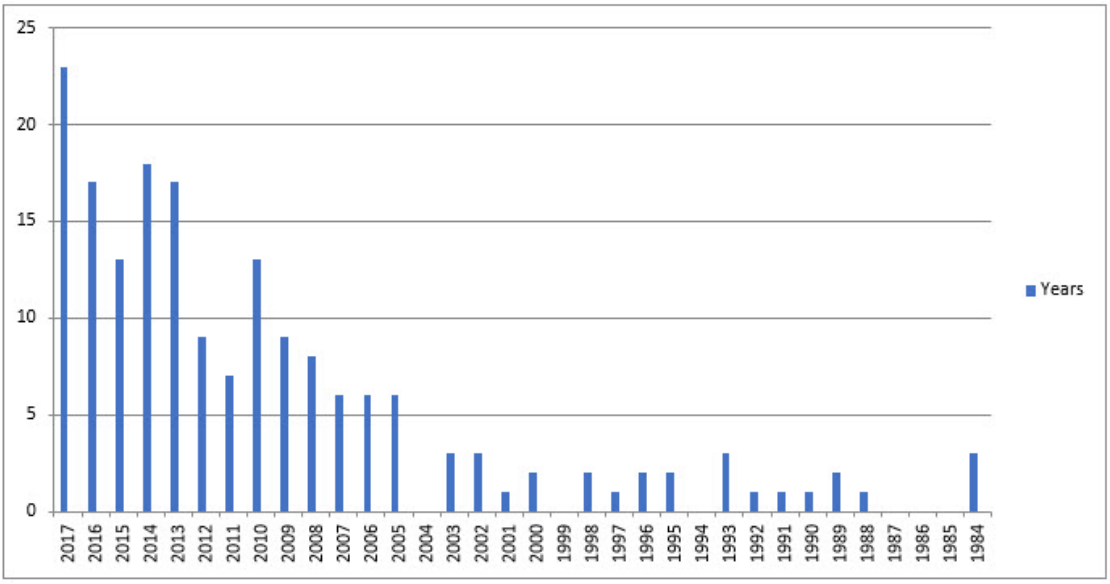


Figure 2 provides the distribution of the published documents on learning environments and special education based on the year of publication. Results showed that published documents are distributed between the years of 1980 and 2017 as demonstrated in the figure and there are no publications in 1985, 1986, 1987, 1994, 1999 and 2004 out of the 180 documents examined in the study. The number of

published documents increased regularly especially after 2005 when compared to previous years and the highest number of publication is in 2017 with 23 publications.

Distribution of the published documents based on the name of the journals

Table 1.
Name of the journals in which the documents published

Name of the journals	*f*	%
European Journal of Special Needs Education	20	11.11
Lecture Notes in Computer Science	7	3.89
International Journal of Inclusive Education	6	3.33
Remedial and Special Education	5	2.78
British Journal of Special Education	4	2.22
Computers And Education	4	2.22
Exceptional Children	4	2.22
Journal of Research in Special Educational Needs	4	2.22
Journal of Special Education	3	1.67
Revista Brasileira de Educacao Especial	3	1.67
American Journal of Distance Education	2	1.11
Education and Information Technologies	2	1.11
Emotional and Behavioral Difficulties	2	1.11
International Journal of Learning	2	1.11
International Journal of Special Education	2	1.11
Intervention in School and Clinic	2	1.11
Journal of Autism and Developmental Disorders	2	1.11
Technology and Disability	2	1.11
World Academy of Science Engineering and Technology	2	1.11
Other Journals	78	43.33
Total	**180**	**100**

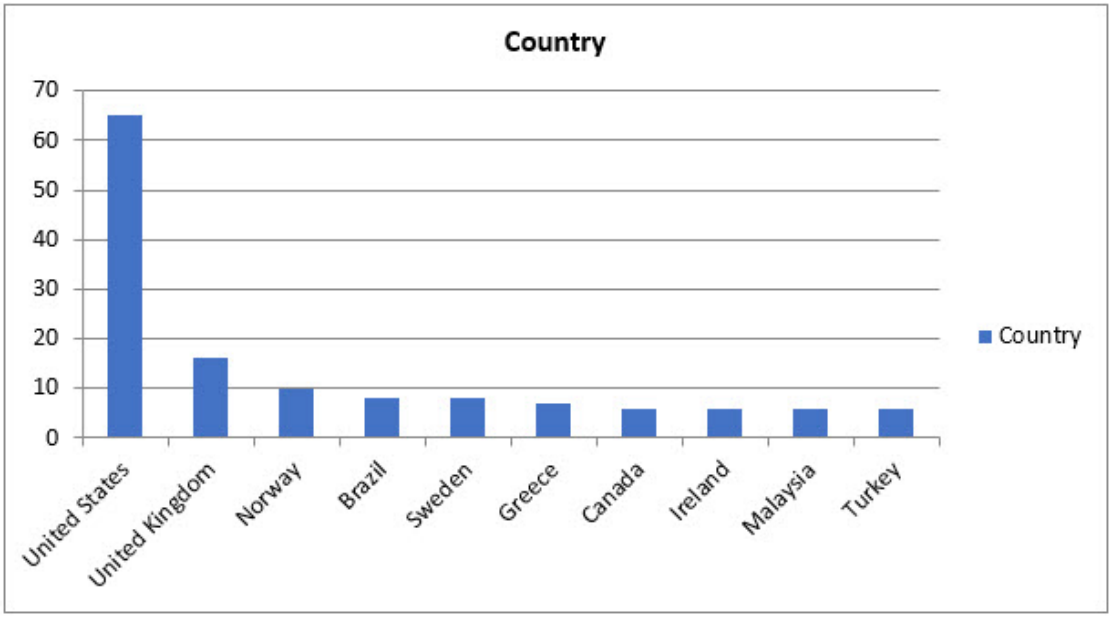
Table 1 shows the name of the journals in which the documents related with learning environments and special education were published. The first 19 journal names are shown in the table, because the frequency of other journals was one and these journals constituted 43.33% of the 180 documents. The highest number of publications is in European Journal of Special Needs Education (f = 20, 11.11%). This result is followed by Lecture Notes in Computer Science with seven publications (3.89%); International Journal of Inclusive Education with six publications (3.33%) and Remedial and Special Education with five publications (2.78%).

Results on the names and affiliations of the authors

Results on names and affiliations were not shown in table or figure, because their frequencies were one or two and it would not be possible to demonstrate in a table or figure. According to the results, Oslo University and Helsinki University are the mostly observed academic institutions which are mentioned as affiliations in the published documents and the others were only with one and two frequencies. No steady trend was observed in the names and affiliations of authors.

Distribution of the published documents based on the countries

Figure 3.
Countries of the publications



Distribution based on the countries of the publications is presented in Figure 3. The top 10 countries were included in the figure, because the other countries were with one frequency. Results showed that the United States is the first country with 65 publications related with learning environments and special education in Scopus. The United Kingdom, Norway, Brazil, Sweden, Greece, Canada, Ireland, Malaysia and Turkey were the other countries with the highest number of publications

Distribution of the published documents based on the document type

Table 2.
Document types of the published documents

Document type	*f*	%
Article	125	69.44
Conference paper	25	13.89
Book	11	6.11
Book chapter	9	5.00
Review	6	3.33
Article in press	2	1.11
Conference review	1	0.56
Note	1	0.56
Total	**180**	**100**

Table 2 shows the document types of the published documents. Most of the published documents were articles (f = 125, 69.44%). Therefore, it can be determined that authors choose to publish research articles rather than other types of documents. It was also revealed that conference paper (f = 25, 13.89%), book (f = 11, 6.11%) and book chapter (f = 9, 5.00%) were also frequently mentioned document types.

Distribution of the published documents based on the subject area

Figure 4.
Frequency distribution of the published documents based on the subject area

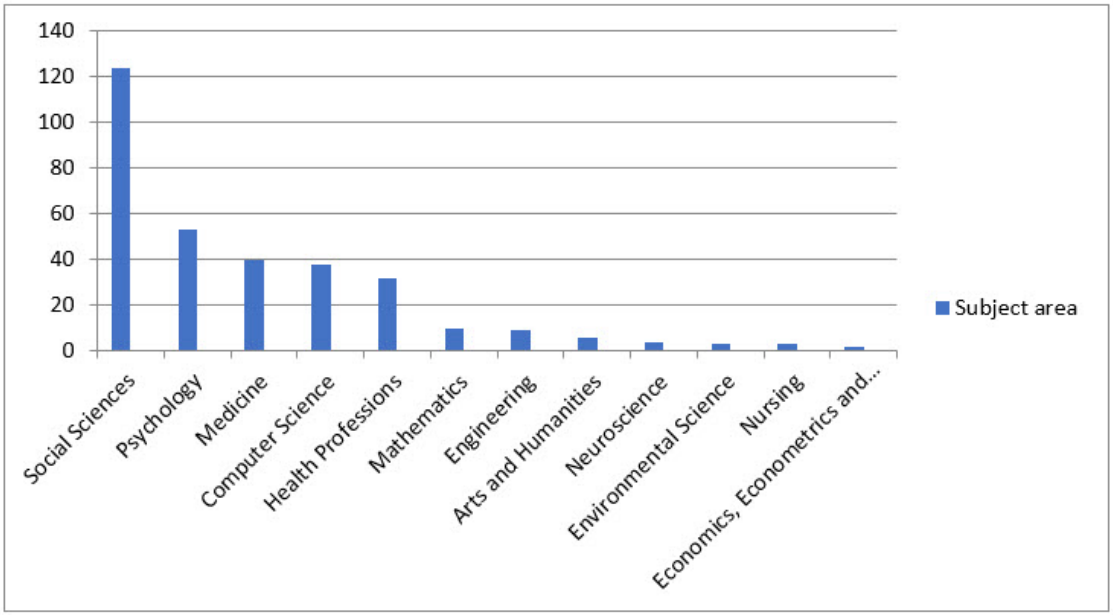
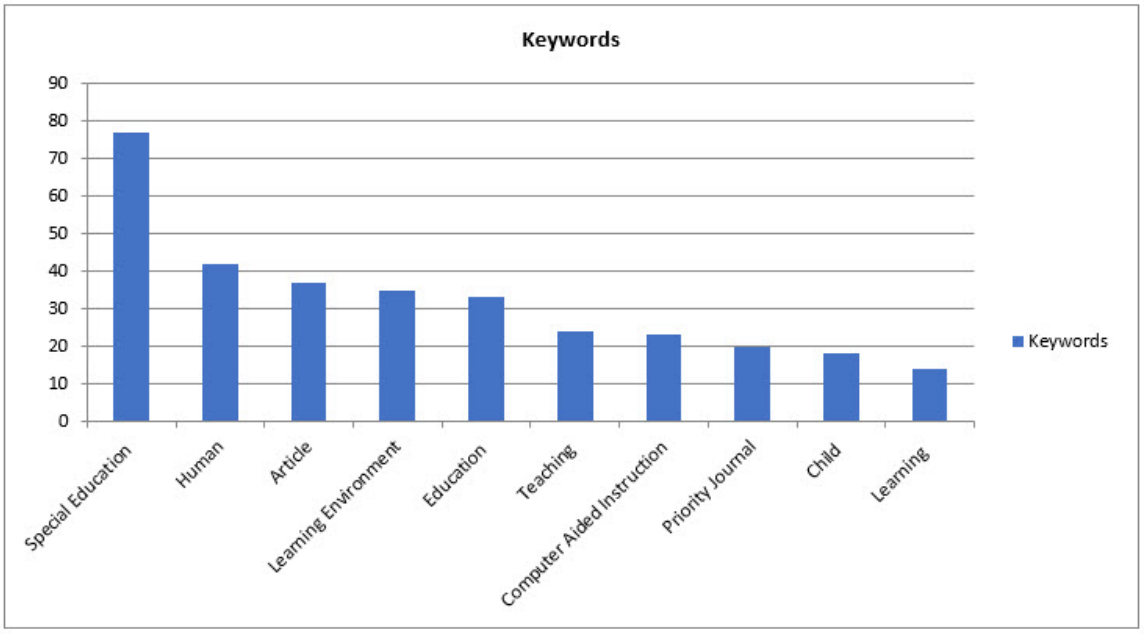


Figure 4 demonstrates the distribution of the published documents based on the subject area. Subject areas with one frequency value were not included in the figure. Results revealed that social sciences, psychology, medicine, computer science, health professions and mathematics were the most frequently studied subject areas in studies related with learning environment and special education.

Distribution of the published documents based on the keywords

Figure 5.
Distribution of the published documents based on the keywords



Distribution of the published documents based on the keywords is shown in Figure 5. The top 10 frequently used keywords are involved in the figure. Results indicated that 'special education', 'human', 'article', 'learning environment', 'education', 'teaching' and 'computer-aided instruction' were the most frequently mentioned keywords in the papers about learning environment and special education.

Distribution of the published documents based on the language

Table 3.
Language of the published documents

Language	*f*	%
English	175	97.22
Portuguese	4	2.22
Turkish	2	1.11
Japanese	1	0.56
Spanish	1	0.56
Total	**180**	**100**

Table 3 shows the distribution of languages of the papers about learning environment and special education. According to the results, majority of the published documents were in English (f = 175, 97.22%). There were four documents in Portuguese (2.22%), two documents in Turkish (1.11%), one document in Chinese and Spanish (0.56%).

The most cited documents on research methods and special education in Scopus

Table 4.
Most cited documents

No.	Document title	Author(s)	Year	Source	Cited by
1.	International trends in inclusive education: The continuing challenge to teach each one and everyone	Ferguson, D.L.	2008	*European Journal of Special Needs Education*	101
2.	Mobile learning technology based on iOS devices to support students with special education needs	Fernandez-Lopez, A., Rodriguez-Fortiz, M.J., Rodriguez-Almendros, M.L., Martinez-Segura, M.J.	2013	*Computers and Education*	93
3.	Full inclusion and students with autism	Mesibov, G.B., Shea, V	1996	*Journal of Autism and Developmental Disorders*	75
4.	Virtual spaces: Employing a synchronous online classroom to facilitate student engagement in online learning	McBrien, J.L., Jones, P., Cheng, R.	2009	*International Review of Research in Open and Distance Learning*	66
5.	Social integration and severe disabilities: A longitudinal analysis of child outcomes	Cole, D.A., Meyer, L.H.	1991	*The Journal of Special Education*	62
6.	Reducing poverty through preschool interventions	Duncan, G.J., Ludwig, J., Magnuson, K.A.	2007	*Future of Children*	58
7.	Effective Special Education in Regular Classes	Wang, M.C., Birch, J.W.	1984	*Exceptional Children*	47
8.	Planning for effective co-teaching: The key to successful inclusion	Walther-Thomas, C., Bryant, M., Land, S.	1986	*Remedial and Special Education*	46
9.	Student teachers' perceptions about inclusive classroom teaching in Northern Ireland prior to teaching practice experience	Lambe, J., Bones, R.	2006	*European Journal of Special Needs Education*	42
10.	Using a participatory action research approach to create a universally designed inclusive high school science course: A case stud	Dymond, S.K., Renzaglia, A., Rosenstein, A., (...), Niswander, V., Gilson, C.L.	2006	*Research and Practice for Persons with Severe Disabilities*	38

Table 4 demonstrates the most cited documents on learning environments and special education. The 10 most frequently cited documents are included. The article with the highest citations was published in 2008 and it has 101 citations. This result is followed by an article with 93 citations in 2013; an article with 75 citations in 1996 and an article with 66 citations in 2009. When the subjects of the most cited articles are examined, it is seen that they mostly focus on inclusion, learning and social integration of the individuals with special needs.

Discussions

Evaluation in special education is very important in terms of determining the suitability of the student for special education, identifying the distinguishing characteristics of the student and determining and presenting the existing performance level of the student. Therefore, a systematic review of the scientific research conducted in this area is of great importance and the present study aimed to review the studies on learning environments and special education and reveal the trends in these studies through content analysis and citation analysis. According to the results, the number of published papers showed a regular increase especially after 2005 when compared to previous years and the highest number of publication is in 2017 with 23 publications. This might be related with the increase legal foundations, regulations and supervisions of special education practices since these make it obligatory to provide appropriate learning environments for the students with special needs, and therefore, the number of publications increased (Fulcher, 2015; Kauffman and Badar, 2014).

Furthermore, the highest number of publications were in European Journal of Special Needs Education, Lecture Notes in Computer Science, International Journal of Inclusive Education and Remedial and Special Education with five publications. Results indicated that the United States was the first country with 65 publications related with learning environments and special education in Scopus. In line with this result, Demirok, Baglama and Besgul (2015) found that the United States has the highest number of publication regarding special education. In addition, the United Kingdom, Norway, Brazil and Sweden were the other countries with the highest number of publications. According to the results, articles, conference papers and books were highly preferred by the researchers for publishing. Results revealed that social sciences, psychology, medicine, computer science, health professions and mathematics were the most frequently studied subject areas in studies related with learning environment and special education. Results indicated that 'special education', 'human', 'article', 'learning environment', 'education', 'teaching' and 'computer-aided instruction' were the most frequently used keywords in the published documents related with learning environment and special education in Scopus. These results might be related with the interdisciplinary nature of the field of special education (Hernandez, 2013).

Resulst regarding the languages of the published documents showed that majority of the published documents were written in English. Lastly, the article with the highest citations was published in 2008 with 101 citations. This result is followed by an article with 93 citations in 2013; an article with 75 citations in 1996 and an article with 66 citations in 2009. When the subjects of the most cited articles are examined, it is seen that they mostly focus on inclusion, learning and social integration of individuals with special needs, which is very important and prevalently studied research subjects in special education (Allen and Cowdery, 2014; Baglama and Demirok, 2016; Kirby, 2017; Uzunboylu, Uluc and Ozcan, 2017).

Conclusions and recommendations

In conclusion, the present study provided a comprehensive review for the studies related with learning environments and special education to provide a framework for the current situation and trends in these studies. Recommendations are provided for further research and practices:

- Different academic databases should be analysed in order to reveal the trends in published papers on learning environments and special education.
- Guidelines for how to constitute appropriate learning environments for individuals with special needs might be emphasised more in scientific research for researchers and professionals of special education.
- Other content analysis criteria including research sample, topic, method and number of authors might be used to point out these tendencies in the published documents related with learning environment and special education.
- Instead of revealing the current situation, further research might carry out studies with different research methods in order to provide comparative results.

Conflict of interests

The authors declare no conflict of interest.

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Deviant Online Behavior in Adolescent And Youth Circles: in Search of a Risk Assessment Model

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Abstract: The authors made an attempt to describe the problem of developing the concept of risk assessment of deviant online behavior of minors and young adults in social networks. The article looks into the psychological consequences of banalizing of the internet, analysis possibilities for offline and online behavior. Approaches for risk factors assessment of deviant behavior in real life are described: the qualitative (clinical), statistical (actuarial) and structured. The article systemizes the studies of risk factors, vulnerability, and deviant patterns in the context of phenomena such as aggressive, asocial, auto-aggressive, self-mutilating, suicidal, risk-taking and victim online behavior. Approaches and models of online deviant behavior are discussed; an attempt is made to build a structured model of risk assessment of deviant patterns of online behavior in the context of the cultural historical concept. On the basis of theoretical analysis, a hypothetical set of group, interindividual and intraindividual constructs is formulated, the combination of online and offline risk factors produces a model for risk assessment of deviant behavior. The article is written as part of the research project "Developing the profiling model of online behavior of minors and young adults in social networks" which was initiated by the Moscow State University of Psychology and Education.

Keywords: deviant online behavior, minors, young adults, social networks, risk factors, vulnerability, resources, risk assessment.

Introduction

In the modern world technologies are becoming an important part of people's life, transforming it in such a way that people tend to see themselves as important participants in numerous global processes. The technology enables an individual to become a witness of events (albeit virtually) occurring many miles away. Now, like an editor of a media one can influence how important a particular piece of news is among other news, engage in debating topics of interest with absolute strangers, make one's protest, block those participants in the discussion whom he/she doesn't really like, comment on events of all sorts etc (Tikhonova et al., 2017). It's hardly possible to call in question the point that the internet has given people powers they didn't have before (Tkhostov, 2018).

According to the survey results published by Hootsuite as of 2019 (Global digital report, 2019), 57% of the world population (4.388 bln people) are internet users, 45% of the population (3.5 bln) use social networks. The corresponding numbers for the Russian Federation are the following: 76% of the population are internet users and slightly less people - 49% - are social networks users. On average the Russian internet users spend online 6 hours and 29 minutes every day (which is 1.55 times less than those in Philippines do, but 1.73 times more than in Japan). According to the same source, social networks are used for 2 hrs 16 mins. (Global digital report, 2019). A cursory glance can show that no matter where users of the World Wide Web are (at scientific conferences, important meetings, attending classes in school or in universities, sitting in cafes, walking along streets, driving their cars etc.), they always find themselves faithfully following latest developments, reading the news, using social networks, playing online games, watching football matches or films.

The estimates obtained through the survey are debatable though, as internet users can hardly be

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accurate in their appraisals for a number of reasons (getting involved in online activities which distorts perception of time, or self-justification, because it can be revealed from self-observation that everyone is spending increasingly more time online - in the public transport, during one's education classes, at home etc, i.e. users underrate their appraisals of the time they spend online). If we turn to the criteria of internet addiction or problem internet usage suggested by K. Young (similarly to the signs of pathological gambling), then presence of the following 5 signs indicates addictive online behavior: 1) preoccupation with the internet; 2) the need to prolong one's online session for self-gratification; 3) recurrent efforts to spend less time online; 4) irritability; 5) depression; 6) mood swings when internet usage is limited; 7) online sessions take longer than expected; 8) work and relations become threatened by the internet usage; 9) misleading others about one's time online; 10) using the internet to feel better (Young,1998). It is obvious that online time appraisals aren't accurate.

Thus, the general tendency is as follows: the number of people who use the internet and social networks is in steady rise, adolescents and young people are the most active population group. Besides, the age of starting internet usage is decreasing. And so is the age when people start using the internet independently and decide for themselves what content to consume. Because of technological progress, this media source has become personalized and gone mobile (Livingstone et al., 2011). According to the most recent studies made in European countries (including Russia), it seems possible to state that over the decade there's been a significant growth in the number of smartphone users, and that the amount of time which happy internet users spend online has risen, having doubled in a number of countries (Smahel et al., 2020). And these are adolescent circles.

Psychological consequences of banalizing the internet

Researchers' attention is largely attracted to looking at what happens to an individual while online, what psychological consequences of using modern technology (including the internet) there are. The consequences do exist, as a large part of one's day-to-day life is spent online, as far as it can be judged from the statistical data (Internet in Russia, 2018; Global digital report, 2019).

According to Tkhostov A.Sh., it should be possible to indicate a number of consequences of misusing technology, both specific and non-specific. In the former case the base defect is effort deficit as well as voluntary regulation deficit. Secondary disorders are linked to difficulties with initiating and planning an activity, impaired control, and infantilization. In the latter case the basic defect is the isolation of higher mental functions and disruption in their hierarchical structure. In this case the secondary impairments are associated with "clipped mindset", barriers blurring, problems with undertaking obligations and accepting responsibilities, subordination as well as diffused identity (Tkhostov, 2018). Due to insufficient space for discussing this problem here, let's ask ourselves though, what misuse is. 6.5 hours of time a day which is devoted (on average) voluntarily to the internet - is it a sign of this misuse?

The exponential growth of social networks usage (Global digital report, 2019), has undoubtedly had an effect on the interpersonal communication specifics, for it has largely moved from the real world to the virtual world (Lowry et al., 2016). As A. Kende maintains, "Social media (and the attendant technologies) pose probably the largest upheaval to the way in which people interact and engage with each other since the time of William James" (Kende et al., 2015, p. 277).

So, the consequences of the breakthrough emphasized by A. Kende include a deep transformation of the communication process itself, of the power relations which are conjugated with it, in particular those linked with widening the rights which participants may have in communication (Marzouki, 2016), the changes touched the communication norms as well. What belongs to other qualitative changes of communication process as compared with the real world situations is its simplification. Participants in communication now have significant freedom for staying anonymous (with all the ensuing psychological consequences and interaction specifics given by the anonymity). What we relate to qualitative differences of the communication process occurring via the internet is the ability to modify or construct one's identity, interrupt or altogether stop one's communication at every moment (Emelin, V. A. and Tkhostov, A., 2015, 2016).

Using new technology, in particular the internet, alters the actor himself/herself and also affects his/her communication with others, changing the nature of the process. And now the question is: do the things mentioned above suggest that with the advent of the internet and its widespread use the communications in real life, too, undergo changes or maybe the changes primarily occur in online communications rather than in the real world, without affecting the latter. If we take Tkhostov's ideas, then it follows that in the so called digital era it becomes possible to speak about the changes happening to an individual and to the way he/she thinks, feels and behaves with all the ensuing consequences.

Online and offline behavior: some analysis possibilities

A number of researchers ask themselves how behavior in the real world relates to that in the internet. It seems possible to indicate a significant number of empirical facts, obtained within the framework of differing theoretical models (for example, Bandura, 1977; Joinson, 2007; Kende et al., 2015; Moor and Anderson J. A, 2019). There are empirically obtained reasons to believe that people are better at expressing their true selves while online than in real life (Kende et al., 2015). Experimental results suggest that the internet and social networks in particular are a means of mobilizing people to participate in collective acts (Kende et al., 2015; Shumann and Klein, 2015). At the same time other studies indicate the emergence of 'slacktivism' (the so-called 'couch activism'), which is a less costly form of activity (draw up or sign an online petition, share some information in the Net) than real actions (Shumann and Klein, 2015). Let's outline here some possibilities for studying the problem of relationship between online and offline, in particular, related to deviant, anti-normative behavior on the internet and its correlation in real life.

The phenomenon, whose consideration is appropriate in connection with studying the aforementioned problem of relation between online behavior and behavior in real life is disinhibition online.

A. Joinson, basing on the work of F. Zimbardo, suggested defining the phenomenon of disinhibition in the following way: "if inhibition is when behavior is constrained or restrained through self-awareness, anxiety about social situations, worries about public evaluation and so on, then disinhibition can be characterized by an absence or reversal of these same factors ... disinhibition on the Internet ... is seen as any behavior that is characterized by an apparent reduction in concerns for self-presentation and the judgement of others" (Joinson, 2007, p.63).

From the point of view of J. Suller the essence of this phenomenon is that individuals behave differently in online communications (say and do things they wouldn't allow themselves in real communications) (Suler, 2004). While not something pathological, disinhibition can be implemented in two independent forms (ibid): in one case (benign disinhibition) the individual shares very private information, discloses his/her secrets, fears, doesn't conceal their emotions, tries to help another person (but is excessively supportive). In the opposite case (toxic disinhibition) the individual is rude to another person, expresses undue criticism or even threats, visits websites whose content has violence, brutal actions, aggression. As Suller writes, it is unlikely that that individual would visit this territory in real life. If the first online disinhibition form can be linked to personal growth and development, then it is interesting to know what consequences of the second disinhibition form might be. According to Suller (ibid), emergence of disinhibition has nothing to do with pathological processes. All that matters is that the cyberspace is conducive to lowering the barriers that control one's behavior in real communication. Suller suggests a six-factor model of online disinhibition effect: dissociative anonymity, invisibility, asynchronicity, solipsistic introjection, dissociative imagination, and minimization of authority (ibid).

On the one hand, among other explanatory mechanisms, applicable to studying online disinhibition, there is a phenomenon of deindividuation, which was originally described by Lebon in his works on mob psychology as early as 1895 (Lebon, 2011). The mechanisms of deindividuation were studied experimentally by Festinger and his colleagues (Festinger, Pepitone and Newcomb,1963) almost half a century later. The transformation that happens to an individual in a crowd, does not emerge exclusively in a large natural group, it happens every time the individual finds himself/herself in a group. According to L. Festinger: "There occurs sometimes in groups a state of affairs in which the individuals act as if they were "submerged in the group." Such a state of affairs may be described as one of de-individuation; that is, individuals are not seen or paid attention to as individuals....under conditions where the member is not individuated in the group, there is likely to occur for the member a reduction of inner restraints against doing various things" (ibid, p.382). It is obvious that a person behaves differently in the deindividuation state than he/she does outside this state and it is also clear that the analysis of one's behavior online is hardly applicable to predicting that in the real life.

Another analysis direction, diametrically opposed to the one mentioned above, originates in the dark triad (or tetrad) logic. It has intraindividual constructs of psychopathy, machiavellianism and narcissism (the construct added to make a tetrad is sadism). Numerous studies suggest that people with these traits are predisposed to asocial, non-standard, transgressive behavior and violation of social norms (Buckels, Trapnell and Paulhus, 2014; Mededovic and Petrovic, 2015; Moor and Anderson, 2019). The appeals to "the dark triad" undoubtedly seem valid. On the basis of the systematic analysis of 26 studies Moore and Anderson arrive at the conclusion that the traits contained in "the dark triad" are related to trolling, cyberagression, cyberidleness, sending unwanted images, cyberbullying, misuse of social networks and the internet, problem online gambling, etc. The studies reviewed suggest that psychopathy is the trait

that is most pertinent to this behavior. Machiavellism and sadism are somehow related to it, too, but to a lesser degree. Finally, narcissism is the least connected with asocial behavior on the internet (Moor and Anderson, 2019).

There are empirical indicators, making it possible to identify the possessors of such personality traits (Panicheva, Ledovaya and Bogolyubova, 2016). In other words, it opens an opportunity to identify individuals with the dark tetrad on the basis of lexico-semantic indicators in texts, posted in social networks, and furthermore - make projections into the future regarding violation of norms both on the internet (such as bullying, trolling) and in real life. However, this combination of intraindividual constructs isn't unique - numerous publications contain considerable number of studies, appealing to various personality dispositions that are linked to deviant behavior (Martínez-Ferrer, Moreno and Musitu, 2018).

Deviant behavior: risk, vulnerability, protective factors and approaches for assessing it offline

Traditionally in the domain of deviantology and legal psychology what is understood as deviant behavior is persistent, recurring behavior which violates social norms, is not in line with the conventional values and rules, is negatively judged by other people, leads to the individual's maladaptation, is harmful to both the person and the society. In different classifications certain parameters serve as the criteria for deviant behavior. They are: the violated norm type, the psychological aims for the behavior and its motivation, implications and damage done, as well as individual and stylistic parameters of the behavior (Zmanovskaya, 2003; Delibalt et al., 2017).

In the context of behavioral problems, related to deviant behavior, asocial manifestations or behavioral disorders these concepts are used: "risk", "vulnerability", "resources for development". Combined together, they can either aggravate or ameliorate various difficulties. Risk is understood as any condition or circumstance that increases the likelihood of formation of problem or deviant behavior (Wenar and Kerig, 2007). At the same time, it is important to note the impossibility of making a comprehensive risk factors list because the cultural-historical context always changes. Risk can condition the formation and development of behavioral difficulties, but it just points to the probability of problems for the children who are exposed to it. According to a number of studies, it is possible to single out the most prevalent risk factors in an individual's childhood which predispose him/her to delinquent behavior in adolescence. For instance, learning impairments, learning disability, severe behavioral problems (e.g. acts of arson or cruelty to animals), school problems, family dysfunction, delinquent peers in one's environment etc.

However, even information about the risks isn't enough to prognosticate the individual's behavior. It is also necessary to find the so-called vulnerabilities, i.e. the factors which increase his/her reaction to risk (Wenar and Kerig, 2007). A vulnerability only increases the chance of emerging of behavioral problems in those children who are susceptible to it; it manifests itself as an interactive effect. Among the factors pertaining to vulnerabilities are (Rutter, 1985) quick temper, underdeveloped ability for planning, lack of positive school experience, lack of loving care, poor social skills etc.

In addition to it, it is also necessary to take into account the so-called protective factors or development resources, i.e. the factors which increase the individual's stability against adverse factors (Wenar and Kerig, 2007). It is important, because not all children, who are at risk, develop behavioral disorders. At the same time, the full spectrum of protective factors is also lacking, and so is the risk factors list. Various studies show that the factors belonging to the development resources can be high intelligence level, emotional maturity, wide circle of interests, good progress in one's studies, communications with prosocially behaved peers, support from a prosocial adult, the ability to ask for help, love and care in one's family and others (Rutter, 1985).

Analyzing factors of risk, vulnerability and resources plays a special role in developing assistance and prevention programs, in particular, this problem is acute in the domain of preventing of recurrence of socially dangerous behavior. Three approaches can be marked out to assess the risk of deviant and unlawful behavior: qualitative (clinical), quantitative and structured (McMurran, 1996; Dozortseva et al., 2011).

The qualitative (clinical) approach was used in forensic psychiatry for resolving issues with illegal behavior prediction. The objective was to provide a list of criteria whose assessment would be useful in finding the probability of committing various criminal acts by patients. The factors assessment was carried out through qualitative analysis of the clinical presentation, the course of the mental disorder and its prognosis. This approach implies an in-depth, comprehensive analysis on the basis of the experts' knowledge and experience, but is more focused on individual risk assessment. The approach isn't perfect, as the assessments and diagnostics are inherently subjective, labor- and time-consuming in their procedure. Besides, the resolutions passed tend to indicate high risk of illegal behavior, violence and

aggression. To address these problems a number of steps were taken to standardize the assessment criteria; certain mathematical algorithms and procedures were suggested to evaluate the efficiency of the resolutions. (Makushkin et al., 2009; Dozortseva et al., 2011; Monahan and Steadman, 1996; Dolan and Doyle, 2000).

The second approach to risk assessment is statistical (quantitative or actuarial). It appeared as an alternative to the qualitative one and is built upon assessment and analysis of risk factors of unlawful behavior in various gender and age groups, which are statistically obtained on the basis of formalized procedures and scales. In doing so, various demographic data are used, for example, the age of debut of the problem behavior and delinquency, the development history of aggressive behavior and other social attributes, obtained from the statistical analysis. The tools developed within this approach contain a fairly limited number of assessment parameters (these are relatively stable) as well as clear procedures of quantitative assessment. Thus, the limitations of this approach lie in the fact that individual psychological specifics of a person are not taken into account. It therefore follows that these tools are of limited prognostic validity (Monahan and Steadman, 1996; Dolan and Doyle, 2000; Makushkin et al., 2009, Dozortseva E. G. et al., 2011).

The third approach is an attempt to overcome the limitations of the two approaches mentioned above and is built upon the idea of structured assessment of unlawful behavior risk. Such assessment is quite flexible and combines both qualitative and quantitative approaches. The tools, developed as part of this approach, make it possible to assess the risk over time and to take into consideration the so-called "historical risk factors". The assessment is built upon comparison of various facts about the case, which makes it possible to structure quantitative and qualitative risk factors of the past, of the current situation and also find protective factors, i.e. resources. It provides an opportunity to make a probabilistic prediction about the behavior. At the same time, to improve assessment precision, mandatory requirements are imposed: the information assessed must be recorded in different sources, the assessment criteria must be clear and unambiguous, the assessment must be limited to a certain period of time and the assessment inventory should be intended for certain categories of offence (Wallinius M., 2012; Dozortseva E. G. et al., 2011). Among the tools implementing this approach Youth Risk/Needs Assessment (RNA) Tools should be mentioned (Hoge and Andrews, 2002; Hoge, Andrews and Leschied, 2002; etc.). The principles of this method were also applied in the tool "Risk and Possibilities" that is fairly often used in Russia for prognostic risk assessment of repeated illegal behavior and for constructing an individualized work program for a particular minor (Bulgakova et al., 2009).

Online-behavior: the study of factors of risk, vulnerability and deviant patterns

Using of approaches and tools for risk factors assessment of deviant and unlawful behavior relies more on the data obtained from minors' offline life. However, as it was pointed out earlier, nowadays minors and young adults make extensive use of the internet and the most popular with them are different social networks. Both offline communications and those in social networks may hold potential risks for users' psychological safety. 4 types of such risks are distinguished by Soldatova G.U. et al., (2013): 1) content-related risks, caused by viewing information which evokes stress; 2) communication-related risks, involving chances of user's confrontation with various unwanted communications (different forms of cyberbullying, sexual harassment, etc); 3) technology-related risks existing due to the user's difficulties in interacting with social networks websites/apps, as well as hacking into the user's cloud-based accounts; 4) consumer-related risks, including internet scam (fake online shops or charities, phishing etc).

In their study of controlling content-related risks which students have in social networks Zhdanova S. Yu. and Doronina V. F. (2019) attempted to single out the content-related risks categories which social networks users may encounter. Using content analysis, the authors analyzed the answers that the respondents gave to the questions from a questionnaire and singled out 8 risk categories (false information; information about violence and injuring oneself and others; sexual content; promotion of illicit substances; propaganda of ideas and social movements; information that changes one's mental state; information transgressing moral and ethical standards; advertising) and their formal characteristics. The results of the study indicate that the most prominent content occurring in social networks is one which violates moral and ethical standards, which is then followed by information influencing one's mental state (like shocking content), and also information related to violence, aggression and false information.

However, the question is: if it is possible to speak about any norms on the internet, how these norms get manifested, how they correlate with the norms in the offline reality, what the way of their interiorizing is and also how these norms influence online activity and online behavior.

Emelin, V. A., and Tkhostov, A. (2013) point out that the functions of the Internet can be put into

two related but independent enough domains: informational and communicative. Translating this into the terms of online behavior, one can suggest the existence of its two forms (online work with information and communications), with which one can associate various kinds of it, encompassing more special cases of manifestation of online activity.

Researchers' attention is in particular drawn to one's online search behavior, which is able to reflect one's current needs, as well as cognitive styles (Madle et al. 2009). One should mention the involvement into online behavior (probably into its specific manifestations and not generally) which is influenced by the user's psychological and social characteristics, his/her skills and expectations (Short C. E. et al., 2015).

Researchers often view online behavior as a form of social behavior (Brodovskaya, 2016; Pelaprat, 2012). Attempts are made to single out its strategies. In the first place, what is taken into consideration, especially in the initial stages of research, is how intense one's online behavior is (how much time is spent online) and later on the content of one's online behavior (communication, search for information, services in various contexts) is considered (Brodovskaya, 2016; Java et al., 2007).

There are culturally conditioned peculiarities in online behavior of different people which, in turn, determine their attitudes, values, ideas and behavioral patterns. Online activity can also influence one's cognitive styles and behavior in reality (Attrill, 2016). Among other things, the studies indicate the link between individual-psychological personality traits and one's online behavior specifics (Rubtsova, Panfilova and Smirnova, 2018; Whitty et al., 2018), as well as the possibility of one's online behavior being influenced by different identities at various moments, depending on which one comes to the fore in certain situations (Helsper, 2014).

Online behavior happens in reality and, mediated by technology, is displayed in the virtual space. Therefore, despite all the layers of virtual space, that refract mental processes, online behavior must contain the element of psychical functioning, typical for real life activity. At that, there must be mechanisms, providing changes to online behavior as compared to the real one. It can be assumed, that the forms of online behavior ("dealing with information" and "communication") are closely linked. Oftentimes one form may come as leading and the other one as auxiliary. Thus, online behavior can be defined as a form of social behavior, occurring in the virtual space and to a certain extent reflecting the user's individual-psychological and socio-psychological features.

Internet space and social networks are not only digital reality, but also act as the new social community. At present, the studies of mechanisms of cyber- or digital socializing are of certain relevance. (Chitosca, 2006; Pleshakov, 2012; Luchinkina, 2015; Delaney and Madigan, 2017; Soldatova, 2018; Aysina and Nesterova, 2019). This process is seen as the user's integration with electronic socio-cultural environment and is connected with his/her familiarizing with the culture values, norms and rules of online communications. According to Soldatova G.U. (2018), in the virtual space the individual obtains some social experience, which is then reproduced in the mixed reality of online and offline. That leads to formation of one's digital personality as part of his/her real personality.

Aysina P. M. and Nesterova A. A. (2019) point out that cyberspace generates and suggests its own rules and norms of communication, absent in the offline reality. In the authors' opinion, the traditional socializing and cyber-socializing can either mutually complement or disagree with each other. At that, it is suggested to single out two types of cyber-socializing: a positive and a negative one. The positive cyber-socializing involves gaining helpful experience online, using it as development resource for the offline reality, it also involves safe exploration of the cyberspace. The negative cyber-socializing manifests as the user's intense online activity combined with "poor capacity for self-regulation while using online resources along with deviant patterns in one's online communications and/or high vulnerability to aggressive online interventions" (Aysina and Nesterova, 2019, p.49). The authors also mark out three levels of cyber-socializing - high, medium and low. However, what remains debatable and requiring empirical testing is the question of how these types of cyber-socializing are related to one's social functioning in real life and how online and offline deviant patterns correlate.

The researchers' attention in the context of studying deviant patterns of online behavior in social networks and internet space encompasses phenomena such as aggressive, asocial, auto-aggressive, self-mutilating, suicidal, risk-taking and victim online behavior. At the same time, various strategies and research designs are used. For instance, what is analyzed is the content of online communities in different social networks and services such as VKontakte, Facebook, Instagram, YouTube and others. The researchers study the links between the parameters of the internet and social networks usage (frequency, popularity, audiences' gender structure etc.) and the occurrence of certain behavioral problems. They correlate the psychological make-up of internet users' and their tendency to various kinds of deviant behavior. Attempts are made to find relationships between the psychological make-up of the subjects and the publicly available contents of their online accounts (with their consent).

Thus, the research work by Vaske E. V. and Goryunova O. I. (2018) gives the results of a psychological and legal analysis of destructive online manifestations on the example of 228 internet communities created in VKontakte and Instagram. The total audience is more than 1.5 mln users aged 12-25. The authors analyze the content specifics and describe the typology of the online groups (the communities advocating delinquent attitudes, near-extremist symbols, scenes of violence and atrocities, suicidal content etc.). The study showed that the activities of internet groups administrators aimed to develop stereotypes of destructive behavior of various extent and orientation in their visitors without critical understanding on the part of the visitors.

According to the data obtained by Soldatova G. U., Chigarkova S. V. and Lvova E. N. (2017), adolescents of 12-17 often face aggressive communications on the internet. However, the Pew Research Center data suggest that not only minors, but also adults faced various types of harassment or bullying (40% of internet users), 73% of the respondents witnessed it (Duggan, 2014). In addition to age, gender is an important factor of cyber-bullying, too: boys act as aggressors more often, but they tend to undergo online harassment more often as well. Girls are more at risk to be victimized by cyberbullying (Kiriukhina, 2019).

The main peculiarities of online harassment are anonymity, regularity, lots of witnesses (both known and unknown), lack of feedback and uninhibition (Khlomov, Davydov and Bochaver, 2019).

The predominant types of aggression are flaming, trolling, hating, aggressive messaging, “happy slapping”, sexting, cyberbullying and others (Bocij and McFarlane, 2003; Spears et al., 2009; Soldatova, Chigarkova and Lvova, 2017). Cyber-humiliation can also involve online taunting or social online cruelty via email, instant messaging, chats, personal websites, gaming websites, pager messaging and digital messages or images sent through cellular phones (Kowalski, Limber and Agatston, 2012).

It is noted that the key motives of cyberbullies are domination and amusement, whereas impunity, anonymity and some other attributes of online space simplify aggressive communications (Soldatova, Chigarkova and Lvova, 2017). Among other motives are communication problems, participation need (Pronk and Zimmer-Gembeck, 2010), dominance need, (Pellegrini and Bartini, 2001) and others. The major problem is the scarcity of studies in the field of motivational sphere of offline and online harassment. However, some authors state that cyberbullies have similar motives as conventional bullies do (Sanders, Smith, and Cillessen, 2009). In the domain of motivational sphere of cyberbullying there are studies highlighting the motive of revenge (22.5%) (Hinduja and Patchin, 2014). But, as we see it, these studies don’t emphasize if this revenge is directed against a particular person (previously harassed in the conventional, offline way) or if it is aimed at some other person. Among cyberbullying motives can be “they deserve it” attitude towards those with bad reputation, pressure upon children of the same age in the context of their urge to conform with their reference group, “boredom and looking for fun” as a way to fill the gap in one’s life in the absence of hobbies or interests (Kiriukhina, 2019).

Some authors emphasize that real world and online harassment are somehow related. The majority of cyberbullies experienced cyber-victimization, and nearly half of them experienced harassment in real life (Ybarra and Mitchell, 2004).

There are studies showing that girls act as online bullies more often than boys do (Owens, Shute and Slee, 2000). This agrees with the studies, stating that girls are more likely to resort to indirect forms of aggression than to direct ones. Cyberbullying can be called an indirect form of harassment, since one’s ideas can be expressed without any personal contact. Thus, there is no limit to things that can be written (Keith and Martin, 2005).

Some studies suggested looking into the personality of the cyberbully and his/her victim. For example, the work conducted by Australian researchers and aimed to find differences in victims and non-victims of cyberbullying in terms of attachment, locus of control, self-esteem and copying strategies, produced the following results: there were slight differences in all respects except self-esteem. The self-esteem in the subjects who faced cyberbullying only once was higher than in those who have never confronted online harassment or have been the victim of cyberbullying multiple times (Muller, Skues and Wise, 2017).

John, et al. (2018) point out that children and youth under 25, who were the victims of cyberbullying are susceptible to double risk of self-mutilating and suicidal behavior and it should be taken into account when developing a preventive program.

Semenov A., Veijalainen J. and Kyppö J. (2010) show that oftentimes the adolescents who committed school shooting have personal pages in social networks where they leave traces of their internet activities and some markers which make it possible to assess their intentions to carry out attacks on schools. According to the study conducted by Dozortseva E. G., Oshevskiy D. S. and Syrokvashina K. V. (2020) on the basis of criminal cases analysis during psychical and psychiatric examination, the

adolescents who committed attacks on schools were outcasts and isolated in their classes, their identities indicate orientation to the role models of the minors who committed the attack on the "Columbine" school in USA. Data are obtained showing that the shooters had suffered from bullying in their schools, and, at the same time, their internet activities and the social networks communities which they visited served as factors of influence and emotional support. Also, these adolescents are distinguished by aggressive and auto-aggressive behavior shaped long before their shooting, some of them have mental health problems.

Polskaya N. A. and Yakubovskaya D. K. (2019) presented a publications review on self-mutilating behavior in social networks. The authors give generalized data from various studies indicating that 38-50% of adolescents and young people demonstrate online self-mutilating behavior. Referring to the study conducted by Moreno, Ton, Selkie, et al. (2016), they note that during 2014 and 2015 the English-speaking segment of Instagram experienced growth from 1.7 mln to 2.4 mln in users' postings of self-mutilation. The researchers marked out content categories of self-mutilative behavior in social networks such as hashtags, images and comments. The study shows that online communications can have positive effect on users' condition (e.g. one can have one's spirits raised, get help and support etc), but they can also act as risk factors strengthening the users' tendency towards self-mutilation (or interest to it), increasing morbid emotional reactions, unsafe risk-taking behavior and imitation. It is noted that the adolescents who are susceptible to self-mutilation can be vulnerable in social networks, which increases the risk of becoming a victim of cyberbullying. The study indicates the necessity of developing preventive programs and assistive content.

Sokolova M. V. and Dozortseva E. G. (2019) researched the inclination to auto-aggressive behavior in adolescents and the information they consume online. The pilot study revealed correlations between auto-destructive, suicidal tendencies and the frequency of consuming unwanted content, between aggression and anxiety and consuming destructive information as well as correlations between different tendencies toward deviant behavior and visiting social network communities having inappropriate content.

The problem of online suicidal behavior is considered in the study conducted by Luchinkina, A. I. (2015). It was shown that the suicidal virtual personality is based on the real one and that the manifestations of the former are influenced by one's: motives for one's online presence; technical savviness; selection of personal mythology (e.g. associating suicide to bravery, love to misfortune, one's quarrels to death, and to top it all, the main message is one's uselessness; one's death is seen as a means to resolve one's problems and to understand the meaning of life; one's sufferings get emphasized in online postings). The manifestations of the suicidal virtual personality are also influenced by parameters such as one's orientation (prosociality, asociality or anti-sociality), virtualization (time spent online; relationship between one's real and virtual images) and involvement (technical skills, identification with an online subculture).

The assessment of online behavior which is usually associated with pre-suicidal condition is rather controversial. It is mentioned that individuals in such condition spend more time online; create posts indicative of their emotional state and frequent the websites with suicidal content. It is shown that in this way the individuals actualize their need for support for understanding their emotions and seeing that their problems aren't unique (Marchant et al., 2017; Biddle et al., 2018). This is believed to be especially important to sensitive and withdrawn people (Durkee et al., 2011). There is also evidence that women are more inclined than men to look for support and to share online some of the aspects of their pre-suicidal condition (Sueki, 2015). They also seek constructive ways to handle stress. This is the positive aspect of the behavior described but it also involves negative effects, such as normalization and positive appraisal of suicidal behavior, seeking partners in suicide and unrestricted spreading of information on self-mutilating, and as well as increased levels of despair (Marchant et al., 2017).

Other research objects are long posts written by people in pre-suicidal condition. The posts were colored with depression, were self-focused, expressed negative emotions (psychological pain). The anonymity factor, conducive to more active sharing of one's ideas was observed, too (Barak and Miron, 2005). Sueki H. (2015) revealed the relations between suicide-related postings (including texts containing "want to commit suicide" and "want to die") and suicidal behavior. It turned out that the first wording (a more explicit one) is mostly related to a suicidal attempt and self-mutilation, whereas the second - with suicidal thoughts.

Certain cognitive distortions are peculiar to the adolescents possessing low sociometric status in their school groups and visiting certain online suicidal communities. It turned out that the predominant individual cognitive mechanisms were black-and-white thinking, catastrophization, personalization, devaluation of positive sides, emotional justification and labeling (Luchinkina A. I. and Luchinkina I. S., 2019).

In their study of risk factors of shaping suicidal behavior in children and adolescents, which was based on the analysis results of postmortem forensic psychological and psychiatric examination,

Syrokvashina K. V. et al., (2019) point out that the majority of the adolescents who committed suicide were registered users of social networks. The authors believe that what really matters nowadays is not only the adolescent's online presence, but also the nature of his/her participation in various groups, the involvement in suicidal communities and discussing suicidal actions as something acceptable and tolerable. The study points out that posting suicidal content in one's personal pages isn't directly indicative of one's involvement in anti-life communities, but it can signify the actuality of the subject and the ideas for the adolescent and in some cases deliberation of a suicidal act.

General availability of the internet, dramatic development of online communications poses new challenges in the domain of psychological and interdisciplinary research. Not only does cyberspace make it easy for minors to communicate, but it also holds the potential risk of facing new forms of violence, abuse, sexual harassment and exploitation. Sexual grooming comes as a special form of online risk-taking and victim behavior. Dozortseva E. G. and Medvedeva A. S. (2019) substantiate the relevance and necessity for diverse psychological study of grooming and describing the linguistic characteristics of this phenomenon, as well as the importance of research of children's vulnerability and resistance to this sort of sexual abuse, its consequences for children's mental development and also designing of preventive programs.

Due to their immaturity, minors aged 7-15 are vulnerable to different strategies of psychological impact used by individuals who perpetrate sexual crimes. Korchagin N.Yu. et al., (2020) also add to this category of manipulative techniques of psychological impact the following: "informing", "convincing", "instillation", "forcing".

Medvedeva A. S. and Dozortseva E. G. (2019) also mark out various characteristics in online grooming such as the sorts and stages of influence (e.g. contacting, preparation, sex-related communication), grooming tactics (e.g. provocative statements to evoke denial on the part of the minor and his/her subsequent emancipation, comparing him/her to the sexually emancipated peers in order to stimulate imitation; deception and misleading; threats; blackmailing; destructive criticism; insults etc.). It was shown that only 50% of minors in the sampling resisted online grooming, whereas the rest turned out to be susceptible to grooming tactics. In the authors' opinion, it may be indicative of their credulity, the minors' unawareness in the context of online risks and safety and in certain cases signify a tendency towards deviant behavior in the minors themselves. The interpretations given point to the need of developing preventive and educational programs for children and their parents.

Models of risk assessment of deviant behavior

Sarna A. Ya (2014) defines three major paradigms by highlighting certain objects of research (computer-mediated communications, the media and their representatives, the problems which users focus on etc):

1) The cultural and historical paradigm within which media content is considered as a logical stage of development in the history of mass communication media and computer technology; its multimedia, hypertextual and interactive nature is seen as the key features, technical features of means of communication on the Internet and capabilities of online communications etc (D. Bell, M. Castels, L. Manovich, A. Darley, H. Jenkins, B. Peters, V. Savchuk, N. Sokolova, D. Galkin, O. Goryunova et al.).

2) The social and psychological paradigm focuses on studying the specifics of users' self-presentation and self-identification, on the gender and age of participants in online interaction, on the motives and details of their behavior and on either constructive or destructive effect the participants have on the socium etc (H. Bechar-Israeli, N. Ellison, R. Heino, J. Gibbs, D. Huffacker, B.G. Chenault, V. Nesterov, A. Myshenkova, E. Goroshko, A. Voiskunskiy et al.).

3) The linguistic paradigm focuses on studying the stylistic diffusion and the multilingual nature of the internet, the language changes occurring on the lexical, syntactical, grammatical and other levels, as well as the correlation between verbal and graphic communication components and discursive peculiarities in online communication practices etc (C. Thurlow, D. Crystal, J. Runkehl, P. Schlobinski, T. Siever, L. Ivanova, L. Shchipitsina, O. Dedova et al.).

The review of the studies shows that it's feasible to single out the following models for risk assessment of different kinds of deviant online behavior:

- respondents' subjective attitude to certain online phenomena and content they face on the internet and in social networks as users;
- media content found in various communities of social networks and online platforms whose users participate in those communities;
- media content found in users' personal profiles and pages;

- users' psychological make-up on the basis of the data of psychological testing, including the tendency to offline deviant behavior and comparing these data with the users' activity in social networks.

In our view, the most productive approach to developing the model of risk assessment of deviant online behavior in adolescents is the cultural and historical one. In L. S. Vygotsky's cultural-historical concept it is maintained that mental growth is culturally conditioned and is transformed in the course of social and historical processes. In this theory there is an idea about the ontogenetic development as the relationship between the real (natural) and ideal (cultural) forms. The interaction between these forms gives orientation to development. Besides, it is the social environment, that determines and is the source of cultural development of a child, it also holds ideal forms (Vygotsky, 1983; Vygotsky, 1999; Kurysheva, 2003). Digital technology is a new instrument for mediation, whereas the online space is the virtual analog of how a society reproduces in real life (Rubtsova O. V., 2019). Consequently, the social situation of a child's development takes on a new form: not only does the child interact with his/her real social environment, but also with the reality and online virtuality combined together. Given that generally the social situation of development is a kind of a standard for relationships which comes as a result of the historical development of a society, in the real life of a child there can emerge an interpersonal situation of development reflecting that particular child's relationships with his/her immediate social environment in the reference groups he/she belongs to and on whose opinions he/she relies (Venger, 2014). At the same time, similarly to the real environment, the internet contains patterns and forms of both normative and non-normative behavior, and due to the aforementioned factors (anonymity, deindividuation etc.) the barriers to the latter are lowered in the online space. According to Vygotsky's concept, every mental function initially appears in the outer, social circle as interpsychic and, later on, as inner or intrapsychic. As a result of this interiorization process, the social beliefs, norms (or vice versa - anti-norms) of internet communities, reference groups are acquired by the child and come as his/her own beliefs, dispositions and behavioral regulators. The typical forms of the child's behavior become part of his/her individual and psychological features, which also regulate the behavior.

On the basis of the points given, a model is proposed for risk assessment of adolescents' deviant behavior. Such assessment must consider problem aspects, related to the risk of antisociality or victimhood, as well as the resources which address the adolescent person's needs and enabling his/her positive development. The following parameters are included in the assessment:

1. The values, norms and beliefs which are translated by the groups the adolescent person belongs to. The information analyzed are: the content of the websites and group chats, their participants' interests, mutual interactions and social beliefs.

2. The interindividual characteristics of adolescent's interactions with the virtual environment. The researched parameters are: the extent of one's online involvement (the risk of internet addiction, the breadth of his/her contacts), choice of contacts with internet communities (as represented in the adolescent's Web-based accounts), communication intensity, online self-presentation, linguistic peculiarities of one's expressions and conversations etc. It is important to notice the adolescent's current or past participation in hazardous activities on the internet (e.g. cyberbullying, joining suicidally inclined communities etc.). The adolescent's prosocial acts, interactions and self-presentation which are not peculiar to deviant behaviors are also taken into consideration.

3. The adolescent's intraindividual traits. It is important to find how the social norms of the online communities have effect on his/her individual consciousness, to which extent they are interiorized, how strongly they correlate with the adolescent's personal views, beliefs and attitudes. We also analyze individual psychological traits which are conducive to asocial manifestations (e.g. aggression, the traits belonging to the "dark triad" or "tetrad") or victimhood (personality's immaturity, anxiety, low self-esteem etc.), as well as individual traits which inhibit asocial or victim manifestations.

The information obtained as a result of such research will enable one to build an understanding of the adolescent's online activity and to probabilistically assess the risk of his/her online deviant behavior. It should be remembered though, that the social environment of the adolescent is an integral whole and his/her virtual world should be considered in conjunction and interaction with his/her real one. Similarly, the traditional assessment of deviant behavior risk (based on the existing models) for today's adolescent would be incomplete without taking his/her online activities into account. It is the generalized comprehensive analysis that will make it possible to carry out an integral assessment of deviant behavior risk of the adolescent and, if necessary, develop a prevention/rehabilitation program.

It should also be noted that in the general context of the cultural-historical approach, the further elaboration of this problem will undoubtedly rely on the progress in psychosocial studies of social beliefs, situational norms, social identity, self-presentation and other phenomena which are important for understanding the structure and mechanisms of various group and interindividual processes in which

adolescents are involved on the internet.

In comparison to the existing approaches for studying behavior of young internet users which implement partial theoretical ideas and concepts, the model we propose not only contains recognized theoretical grounds, but also encompasses different levels of analysis (group, interindividual, intraindividual). This model is a part of a more general system of risk assessment of deviant behavior in adolescents as a whole and is focused on practical application in social counseling of adolescents with deviant behavior and also in preventing such behavior. There are plans to methodically operationalize the model and develop appropriate research tools in the future.

Conclusion

In the contemporary era the internet technologies are becoming part of the worldview of people so much that they start feeling they are important participants in global processes. The internet and social media find their most active use in adolescent and youth circles.

Among the consequences of social media penetrating daily life, it seems possible to distinguish transformation and simplification of communication process, alteration of power relationships and communication standards. Participants in communication now have various options for keeping their anonymity (with the ensuing psychological consequences). They have freedom to a degree of enabling them to construct and modify their identities, interrupt and completely stop their communication at any moment

Misusing internet technologies results in a number of changes to the subject of communication himself/herself, among which are effort deficit, leading to voluntary regulation deficit. This, in turn, creates difficulties in initiating and planning one's activities, impairs control and brings about infantilization. Besides, higher mental functions isolation and irregularity in their hierarchical makeup is associated with "clipped mindset", barriers blurring, problems with undertaking obligations and responsibilities, subordination as well as diffused identity

The analysis of the studies indicates the negative side of using the internet and social networks, points to the emerging phenomena of the anti-normative spectrum. On the one hand, the explanatory line appeals to the deindividuation construct, which suggests that in this state a person behaves differently than outside it. The analysis of how one behaves in the internet space is hardly applicable to predicting one's actions in the real world.

On the other hand, there are reasons to suggest the existence of personality predictors of deviant behavior, transgression and violation of social norms. The configuration of these predictors includes the so-called dark tetrad (psychopathy, machiavellism, narcissism and sadism).

The analysis we performed makes it possible to outline a structured model for risk assessment based on the cultural-historical concept, which possesses a certain set of group, interindividual and intraindividual constructs. We think that this model of risk assessment is a promising way to predict how online and offline behavior correlate.

Besides, it should be possible to outline a direction to developing preventive measures against deviant behavior (both online and offline). This involves the construct of cognitive flexibility (we'll use one of the definitions dealing with mental ability that characterizes an "individual's ability to transform their cognitive attitudes in response to the changing conditions of their life activity" (Osavolyuk E.Yu., Kurginyan S.S. 2018, p.138). At the same time, psychological prevention aims to avert developmental and behavioral problems through creation of conditions for successful formation and development of the personality resources which would assist in coping with various difficult life situations and increasing resistance against adverse factors (Bogdanovich N. V. and Delibalt V. V., 2020). It is important to pay special attention to developing technologies of online and offline assistance for minors in response to the factors they face on the internet.

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Conflict of interests

The authors have no conflict of interest.

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Peer Assessment of Teacher Performance. What Works in Teacher Education?

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Abstract: Peer assessment is increasingly used in schools and higher education, especially in health education. However, there remains insufficient evidence that peer assessment conditions are beneficial for teacher education. In this article, empirical research literature on peer assessment of pre-service teaching performance are reviewed. The articles were from the ERIC and Scopus databases, from 2002 to 2020. Only fifteen studies met the selection criteria described herein. The studies differed in the type of assessment used but converged toward the conclusion that incorporating peer assessment into different stages of teacher education was appropriate and worthwhile. We discuss the theoretical perspectives on why peer assessment might work in teacher education, pointing out practical implications for decision-makers in this field. Finally, recommendations and constraints for researching and implementing peer assessment are discussed from the perspective of innovation within pre-service teacher education.

Keywords: deviant online behavior, minors, young adults, social networks, risk factors, vulnerability, resources, risk assessment.

Introduction

In the last decade, an increasing interest in peer-learning and peer-assessment (PA) in higher education has occurred, especially in health profession areas (Arnold et al., 2007). However, current evidence does not necessarily support its worthiness (McNulty, 2019). In the field of teacher education, teaching in front of peers, is a quite common practice for diverse purposes (Abdulwahed, 2011; Amobi, and Irwin, 2009), with positive effects in self-efficacy beliefs (d'Alessio, 2018). Despite the relevance of an authentic assessment process to monitor the development of pre-service teacher competences, those which rely on peers as a source of information and collaborative learning are still scarce (Charalambous, Hill and Ball, 2011, Ratminingsih, Artini and Padmadewi, 2017). Indeed, the evidence supporting PA is less robust than other types of assessment in the educational field (Li et al. 2020), which constitutes a research problem, not only for teacher educators bur for decision-makers in this field.

The studies which form the subject of this review, focus on pre-service teachers (PST) teaching performance – rather than on more typical peer-assessed tasks such as written assignments (e.g. Tsai, Lin and Yuan, 2002). Although other prior reviews of PA exist (e.g., Gielen, Dochy, and Onghena, 2010; Li et al. 2020; van Zundert et al. (2010)), these are not focused on teaching performance nor were developed for teacher education. Hence, the present review analyzes a more specific area. Its purpose is to orient stakeholders to critical aspects of the design of PA in teacher education which are empirically based and focused on issues that require further research in order to gain sufficient understanding.

We start by defining PA, its benefits and disadvantages, followed by the essential organizational features and its implementation. After this, the reviewed studies are discussed in terms of outline trends and connection of principles for PA in pre-service teachers and practical implications for working PA in teacher education.

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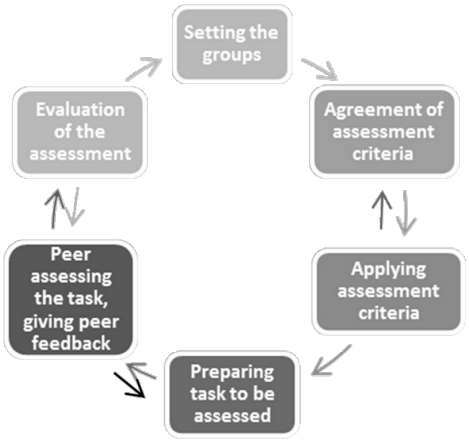
Definition and Types of Peer Assessment

Peer assessment (PA) is a form of evaluation that is designed for enhancing learning (van Gennip, Segers, and Tillema, 2009). Thus, apart from serving an evaluative function, it offers a learning opportunity (Bunch, Aguirre, and Tellez, 2009). PA is understood as "an arrangement for learners to consider and specify the level, value, or quality of a product or performance of other equalstatus learners" (Topping, 2009, p.20). PA by itself or as a complement to other types of assessments has broad areas of application (Gielen, Dochy and Onghena, 2010; Li et al., 2020; van Zundert et al., 2010). The purpose of PA on performance is to help learners make judgments about structured tasks and provide their impressions to peers. PA processes include judging whether specific actions are performed, their quality and suitability for a purpose (Norcini, 2003).

In its nature, PA is a social process, in which one of the essential components is the feedback given to and received from others (Sluijsmans and Prins, 2006; van Genip et al., 2009). Peer feedback is usually reciprocal between assessor and the individual assessed. It can be delivered face-to-face or remotely, verbally or in a written form, immediately or delayed. It can have an affirmative, corrective or suggestive orientation, and reduce errors if received thoughtfully. Useful feedback requires understanding the assessment goals and criteria, and the ability to judge the relationship of the specific performance to these goals (Topping, 2010). PA as an assessment method can be summative, formative or both (Gielen et al., 2010). Formative assessment involves participants helping each other to identify their strengths, weaknesses, and target areas for remedial action, aiming to develop metacognitive skills for future performance (van Gennip et al., 2009). Otherwise, a summative assessment gives feedback often when it is too late to affect the production of the present task, although it may affect the production of future tasks (Topping, 2010). Figure 1 shows the essential organizational features of PA in education.

Figure 1.
Typical PA implementation in education



In this process, working in small groups and trying to avoid close friends or enemies/adversaries has been suggested to facilitate group involvement in the assessment (Topping, 2010). The person in charge helps the group to agree on the assessment criteria that will be used in the PA. This is followed by the exemplary application of the criteria to past cases/evidences or representative examples of the task. Using anonymous examples is recommended to avoid anxiety (Sluijsmanset all., 2003). The application of the assessment criteria is again discussed and clarified. The participants are then encouraged to prepare the performance of a task knowing that it will be peer-assessed. Furthermore, the PA is conducted using the agreed assessment criteria. Kilic and Cakan (2007) recommended between three and five assessors in a set, so that participants (assessees - those being assessed) can balance feedback from different peers, which helps enhance PA reliability. Peer feedback is given to offer the assessee the possibility of improving the performance. The quality of subsequent performances is therefore relevant. The person in charge should evaluate the process to encourage accuracy in applying the criteria and giving peer feedback. Finally, reworking the task in the light of peer feedback is essential, to promote a sense of agency in the assessee.

The cycle may be repeated with the same or different groups to complement the feedback. Wen and Tsai (2008) suggested three rounds of PA. Nevertheless, it is essential not to overload the participants with too many loops, because the benefit of gaining more feedback has a cost in terms of time, which might become a disadvantage.

Benefits and Disadvantages

van Zundert et al. (2010) indicated that most studies on Peer Assessment (PA) had shown benefits, but disadvantages can also be identified. Nevertheless, most of these were identified on researchers' opinion more than on evidence. This poses the need for reviewing empirical studies on the topic.

Benefits of PA in education:

- Increasing reflection upon and generaliation of learning to new situations (Kim, 2009; Ratminingsih, Artini and Padmadewi, 2017)
- Encouraging students' self-regulation and self-awareness (Asghar, 2009)
- Improving the students' dispositions related to being assessed (Ratminingsih, Artini and Padmadewi, 2017)
- Developing students' self-concept (Duran and Monereo, 2008).

Furthermore, PA can save teaching time because of the more immediate and individualized feedback from peers (Sun et al., 2019). Nonetheless, this saving is not often achieved in the short run because the implementation of good quality PA requires a period for organization, training, and monitoring (Falchikov, 2001).

Disadvantages of PA in education:

One of the reported difficulties of PA is the amount of time required for the organizers and the participants (Okhremtchouk et al., 2009). To help with this problem, PA should be integrated into the curriculum (Kilic and Cakan, 2007; Strijbos and Sluijsmans, 2010). Likewise, initial reluctance and anxiety to participate is quite frequent (Arnold et al., 2005). Assessors beginning with positive feedback to the assessee could reduce this and improve subsequent acceptance of more critical feedback (Topping, 2010). Also, discussion, negotiation, and joint construction of assessment criteria with concrete exemplary material before PA might be worthy (MacArthur, Schwartz, and Graham, 1991). Indeed, performing in front of peers might be less stressful than doing it for the first time in front of teachers (Britton and Anderson, 2010).

Another issue is the reliability of PA, because friendships, popularity, enmity, perception of criticism as socially uncomfortable, or the trend to assign average scores can all be affected respectively. Nonetheless, using performance checklists or rubrics, extensive exemplification and careful monitoring of the PA process can increase reliability (Topping, 2009). Ensuring validity, reliability, and fairness of the measures is a more critical issue when assessments are used to make high-stakes decisions (Sandholtz and Shea, 2012). Hence, having clear assessment criteria (Sluijsmans and Prins, 2006), more than one assessor and anonymity between assessors and assessee might help in both summative and formative assessment (Kilic and Cakan, 2007; Vickerman, 2009). This is especially relevant in professional learning contexts. According to Gielen et al. (2011), PA between teachers can be an excellent way to assess teaching skills and also to improve them, but only if all different peer opinions enrich the assessment and if the assessment criteria are clear for all teachers. Although the benefits and disadvantages of PA are known, there still exists a gap in knowledge with regards to which characteristics of PA are supported by evidence within the context of teacher performance. Thus, this review is required.

Peer Assessment of Performance in Teacher Education

One of the goals for pre-service teacher education is to prepare student teachers to critically reflect on their conceptions about teaching, their practice and their peers' practice (Amobi and Irwin, 2009; Feiman-Nemser, 2008). Peer Assessment (PA) in teacher education is a strategy for helping learners to examine their progress in teaching (Sluijsmans and Prins, 2006) and be familiar with it before teaching in classrooms (Wen and Tsai, 2008). Teaching practice is an exercise used to expose student teachers to the practical aspects of teaching (Oluwatayo and Adebule, 2012). Although teaching practice is essential in teacher education (Jian, Odell, and Schwille, 2008; Oluwatayo and Adebule, 2012), attempts to improve it through early assessment are not widely reported (Charalambous, Hill and Ball, 2011).

Moreover, if there is a lack of performance assessment during pre-service education, student teachers do not know if they possess the required classroom teaching skills, nor the quality criteria used to measure their performance or how to improve it (Oluwatayo and Adebule, 2012). Likewise, considering

the difficult shift from the student role to the teacher role without adequate support in the transition process (Jian, Odell, and Schwille, 2008), the lack of clear and agreed recognition of teaching competences is a problem. However, early experiences in the classroom – for example, by student teachers observing an expert teacher and slowly taking more teaching actions - might help in this (Hume, 2012), also developing skills to critically observe teaching practice (Sonmez and Can, 2010). Furthermore, PA in early teaching stages enhances student teachers' ability to analyze and reflect on their practice (Harford and MacRuairc, 2008), i.e., it makes them more analytical when appraising the teaching performance (Sluijsmans et al., 2004), and more able to bridge the gap between their conceptions and practice (Ostroskyet al., 2013). Despite these potentialities of PA, there is still uncertainty on which specifically are supported by recent evidence and what kind of interventions work for teacher education. These particular questions constitute the problem the present review will help to solve. PA studies in other areas of higher education have contradictory conclusions, thus, there is a gap in empirical research oriented to aspects of PA that might be more efficient in teacher education and assure its benefits can overcome the respective difficulties (Li et al. 2020).

Materials and methods

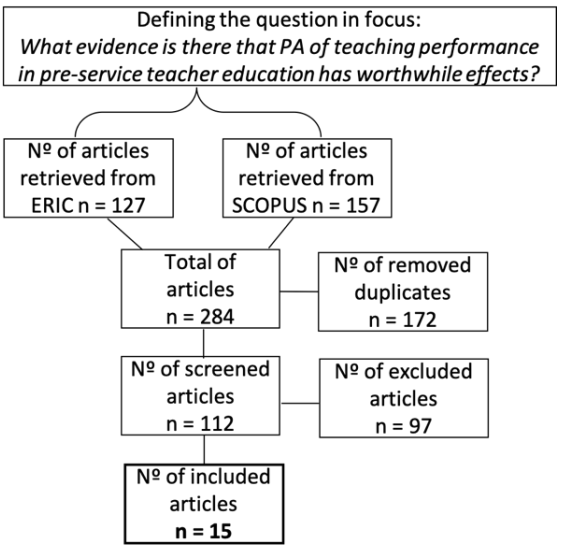
This article reviews empirical studies from 2002 to 2020 in PA of teaching performance in pre-service teacher education to inform researchers and decision-makers, answering the research question 1: (RQ1) What evidence is there that PA of teaching performance in pre-service teacher education has worthwhile effects?

Moreover, in a broader scope, this article seeks to answer the stated questions using the antecedents and the systematic review, the research question 2: (RQ2) What are the theoretical underpinnings of PA of teaching performance in pre-service teacher education?

Review of Studies

A systematic review was used to approach this work following the steps recommended by Cook and West (2012); 1. Defining the question in focus, 2. Identifying information sources – we decided to use two main educational databases; ERIC and Scopus, 3. Searching for eligible studies with defined search terms -we used 'peer assessment' + teach* + performance*. 4. Defining inclusion criteria –English language, articles only with open access. 5. Defining exclusion criteria – articles not based on empirical research. 6. Defining data abstraction elements – we removed duplicates based on the title. 7. Analyze and synthesize – we screened the articles and excluded those not centered on teaching performance in pre-service teachers. Following these steps, we arrived to include fifteen articles (Figure 2).

Figure 2.
Schema of steps in the review process



The fifteen studies included in the research review were conducted in different places, with diverse conditions and varied aims, as summarized in Table 1. The nature of the studies allowed grouping of

them into categories which are described in the following section. Studies focused on PA of teaching performance for its improvement are reviewed first (A); studies centered on pre-service teachers', specifically their development of assessment skills (B), later.

Table 1.
Overview of studies

Study	Category	Declared aim	Author(s) and year	Context/place	Participants
1	A	To foster a community of practice to address the challenges of teaching	Harford & MacRuairc (2008)	Ireland. PA of 10-minute clip of a real lesson during the first teaching practice	20 final-year PST of varied subjects
2	A	To assess teaching skills by peers and instructor	Kilic & Cakan (2007)	Turkey. Microteaching in small groups	122 third-year science PST
3	A	To examine the relationship of students' gender with PA	Oren (2012)	Turkey. Presentation skills for science teaching	203 science PST
4	A	To examine PA, self-assessment and teacher assessment	Kiliç (2016)	Turkey. Presentation performances muti-assessed	15 second-year PST
5	A	To investigate student teachers' thinking and performance to deliver instructional explanations	Charalambous, Hill & Ball (2011)	The United States of America. Microteaching in a simulated classroom	16 final-year primary PST
6	A	To explore the development of explaining skills fostered by peers	Authors (2018)	Chile. Microteaching in small groups	20 fourth-year science PST
7	A	To explore the effects of anonymity in PA within a Facebook-based app.	Lin (2018)	Taiwan. PA of two groups based on microteaching performance	32 PST of adult learners' education
8	A	To help PST to enhance their self-efficacy beliefs.	d'Alessio (2018)	The United States of America. PA of microteaching	433 primary PST
9	A	To investigate the contribution of PA in fieldwork preparation	Al-Barakat & Al-Hassan (2009)	Jordan. PA of practicum experience (45-minute lessons)	72 early childhood PST in the last year
10	A	To investigate the use of peer assessment dialogue as an assessment for learning tool	Eather, Riley, Miller & Jones (2017)	Australia. PA of practical tutorial activities oriented to build skills in peer assessment and feedback	36 physical education PST
11	B	To develop the ability to define performance criteria	Sluijsmans et al. (2004)	The Netherlands. PST enrolled in a teaching design course	93 second-year primary PST
12	B	To investigate assessee's role on metacognitive awareness, performance and motivation towards PA	Kim (2009)	Korea. PST enrolled in an Educational Technology course	82 secondary mathematics PST
13	B	To investigate the impact of PA in assessment skills: how to give feedback and write an assessment report	Sluijsmans et al. (2003)	The Netherlands. PA of writing reflection papers	110 first-year mathematics PST
14	B	To identify PST attitudes towards PA and assessment skills	Seifert & Feliks (2019)	Israel. PA of peers' assignments and performance	300 bachelor's and master's degree PST
15	B	To compare the students' perceptions of two PA instructional designs	Mercader, Ion & Díaz Vicario (2020)	Spain. PA of enacted case studies in two instructional designs	556 second-year PST

(A) Studies based on peer assessment of teaching performance

Harford and MacRuairc (2008) underlined the relevance of formative PA and feedback. In their study, the student teachers gradually moved their focus of analysis towards more meaningful reflection. They deconstructed the practice of their peers more critically and analytically. The researchers used focus groups, the results of which suggested that student teachers had developed their reflective skills. Moreover, pre-service teachers felt able to transfer the good practice observed in their work, evaluating the project as a powerful mechanism for conducting self-review. They valued informal and formative feedback, remarking that formal assessment would have reduced their engagement with the process and

the quality of the reflective dialogue. In this study, intervention and research were conducted by the same researchers. The results were based on a qualitative analysis of self-reports, so its reliability is open to challenge.

In the study of Kilic and Cakan (2007), the peer assessors and instructor evaluated pre-service science teachers' content and teaching knowledge, the teaching and learning process, class management and communication, as presented in a microteaching episode. They used a form with a 5-point Likert-type scale between very good and very poor. Peer scores were considerably higher than the instructor's, but the two scores significantly correlated. Improved correlations were then found in the second attempt at PA. They showed the number of peer assessors needed to be around five to sustain acceptable reliability. This study did not determine if the assessed performance improved.

Oren (2012) studied the influences of participant gender in scores from peers, self and instructor on communication skills for teaching science during a 10-week semester. In this study, female participants obtained significantly higher mean scores than males in all score types. However, as this study did not count with a baseline measurement, we do not know if female pre-service teachers had better skills or they benefited more from the course. Similarly, Kiliç (2016) conducted multiple assessments by peers, self and instructor. The results showed PA was significantly higher than the other types of evaluations based on their scores. PA was perceived as an enhancer of successful performance and higher confidence for presenting lessons between student teachers. Although this assertion is based on participants perceptions and not supported by a more objective indicator, it is a positive signal for strengthening PST's self-confidence.

Charalambous, Hill and Ball (2011) investigated mathematics pre-service teachers' thinking and performance when delivering instructional explanations. The 20 participants co-constructed a list of criteria for determining the quality of instructional explanations, giving a performed example in a simulation of a lesson. The peers completed reflection cards and shared their comments with the performers. Through a case analysis of four participants, the researchers concluded that their performance could grow to vary degrees after PA and reflection.

The study of Cabello and Topping (2018) had a within-subject repeated-measures design. The 20 student teachers received training in PA and constructed assessment criteria. They peer-assessed microteaching in two rounds through a rubric. The PST significantly increased their microteaching performance after PA, with a reasonable effect size (d=1.4). This improvement was maintained and transferred into real-life teaching when followed up. Nonetheless, the participants' self-selection and the limited sample size affected the generalizability of the results.

In the experimental study of Lin (2018), online PA was carried out in a Facebook-based learning application, looking for effects of anonymity on affective, cognitive and metacognitive peer feedback. The student teachers were randomly assigned to write feedback to five peers' microteaching videoed performance in an anonymous or identifiable condition. The author applied a 6-point Likert scale for the perceived learning, fairness of peer feedback and attitude toward the online PA system. The anonymous group gave more cognitive feedback and the identifiable group more affective and metacognitive. In the role of assessees, the group, when in an unidentified condition had a better attitude towards the system. However, they perceived peer comments as less fair than those of the participants in the identifiable group. The study argues that the cognitive and pedagogical benefits of anonymity in online PA are well demonstrated, although, the data analysis only allows inferences on their perceptions.

d'Alessio (2018) conducted a study to help student teachers to build self-efficacy beliefs. The student-teachers performed microteaching, self, and peer assessment of the events, which was analyzed using a rubric. The quality of microteaching based on PA and mastery of the content had the most significant influence on participants' self-efficacy beliefs in this study.

Al-Barakat and Al-Hassan (2009) explored early childhood student teachers' preparation in various applied contexts. They received extensive training on PA reviewing videos. Then each PST was observed once a week by 4-5 peers over ten weeks in a 45-minute lesson. The classroom observations were discussed in a group, and feedback was given. Using interviews, they found PA developed participants' classroom performance, especially on competencies such as designing objectives, activities, teaching strategies, interaction, students' assessment and classroom management. Moreover, they found PA helped student teachers to form a set of criteria for judgement on classroom performance and improvement of self-confidence within the assessment.

Similarly, the use of peer dialogue assessment was researched by Eather et al., (2017) in physical education PST. They found significant improvements in perceived teaching confidence and competence, and teaching self-efficacy based on self-reports. In both studies, the same researchers conducted the interviews and the course, making the validity more open to challenge.

(B) Studies based on peer assessment of performance as a skill

In the study of Sluijsmans et al., (2004), the participants were randomly assigned to similar-sized control (n=47) and experimental (n=46) groups. The experimental group was trained in PA while the control group was not. The student-teachers defined a set of assessment criteria for designing a creative lesson plan. The study used PA forms, questionnaires and interviews. The researchers found the experimental group was more capable in applying the criteria than the control group, the experimental group also used the criteria more often and felt more able to assess after PA than before PA. Still, there was no significant effect of the training in PA skills on performance. Even so, the researchers concluded that PA skills could be successfully trained, but the value of the training is uncertain if no impact was found on their resultant performance.

Kim (2009) used a metacognitive awareness questionnaire and a motivation survey. PST's performance was measured in an assignment to create a concept map on instructional design. All the participants submitted their tasks for peer feedback and tutor marks. After receiving feedback, the participants were randomly assigned to an experimental condition that received a back-feedback opportunity (n=40) and a control condition without back-feedback (n=42). Back-feedback consisted of giving their opinion on the feedback, enabling reflection on peer feedback. After revision, PST resubmitted their concept maps and completed the metacognitive awareness questionnaire and survey. The experimental group subsequently showed higher metacognitive awareness, better performance and better attitudes towards PA than the control group. The researcher did not report the size of effect of the improvement, or the correlations between peer and tutor marks. Thus, the study seems unspecific in the manner which is published.

The study of Sluijsmans et al., (2003) had a within-subject repeated-measures design. Questionnaires, PA forms and the student teachers' reflections were used to assess written reflection papers. PST received several training sessions on assessment skills, how to give feedback and write assessment reports. They agreed nineteen assessment criteria (i.e. self-criticism, work field experiences, personal expectations, etc.) and marked the peers' task and wrote their written reflections in a virtual learning environment. The instructor also marked the reflection papers. The researchers concluded there was significant progress for most variables studied: the participants used the assessment criteria better; their feedback was better, and their assessment reports were more structured. Likewise, they wrote better reflection papers, based on the instructor's marks; however, the effect size of the advance was not reported. Moreover, the design of the study does not allow PA to be related causally to better performance because a comparison group was not incorporated.

Seifert and Feliks (2019) studied attitudes concerning self-assessment and anonymous PA to improve PST assessment skills. The participants assessed several products and noted they benefitted from the process and developed good attitudes to PA. Mercader, Ion and Díaz-Vicario (2020) used different instructional designs to guide PA. PST perceived that long-term mediations, two rounds of PA and giving feedback were the most useful. Both studies had quantitative analysis and linked them with PST's perceptions.

Results and Discussions

Here the research findings of this review are summarized, then interpreted. After this, they are discussed in terms of practical implications for teaching and future research.

The analysis of the studies showed some similarities and several differences. Firstly, they were conducted from the early to the final years of teacher education, but the trend in similarity seemed to be stronger towards the latter years. The participants were from a wide range of subjects, with a slight tendency towards science and mathematics. The sample size varied from 16 to 556. The performances assessed were based on teaching skills (Al-Barakat and Al-Hassan, 2009; Charalambous, Hill and Ball, 2011; Charalambous, Hill and Ball, 2011; Kilic and Cakan, 2007; Lin, 2018), assessment skills (Kim, 2009; Mercader et al., 2020; Seifert and Feliks, 2019; Sluijsmans et al., 2004) and a combination of teaching practice with the development of peer assessment as a skill (Cabello and Topping, 2018; Sluijsmans et al., 2004). The purposes of PA were summative (Kilic and Cakan, 2007; Sluijsmans et al., 2004), formative (Al-Barakat and Al-Hassan, 2009; Cabello and Topping, 2018; Charalambous, Hill and Ball, 2011; Harford and MacRuairc, 2008; Kim, 2009; Lin, 2018) or both (Sluijsmans et al., 2003). Feedback was face-to-face in most of the studies, but d'Alessio (2018), Lin (2018), Mercader et al. (2020) and Sluijsmans et al. (2003) who used an online platform.

The studies also differed depending on the assessment criteria used for PA. Kilic and Cakan (2007),

Lin (2018) and Al-Barakat and Al-Hassan (2009) used criteria defined by the staff member, while Cabello and Topping (2018), Charalambous, Hill and Ball (2011), Sluijsmans et al. (2004) and Sluijsmans et al. (2003) agreed on the criteria between the participants. Harford and MacRuairc (2008) and Kim (2009) did not use structured criteria to guide the PA processes, although they found an improvement in awareness about teaching practice. Only some studies reported a guided training received by the participants (Al-Barakat and Al-Hassan, 2009; Cabello and Topping, 2018; Kiliç, 2016; Mercader et al., 2020; Sluijsmans et al., 2003).

Most of the studies reported benefits of PA on the performance assessed. However, the study of Sluijsmans et al. (2004) did not show an effect, Kilic and Cakan (2007), Lin (2018) and d'Alessio (2018) did not mention it. Nonetheless, two studies used a repeated measures design and reported a measurable improvement in the performance (Cabello and Topping, 2018; Sluijsmans et al., 2003). They found a significant and robust advance in participants' performance after PA - despite the vast difference in their sample sizes (20 vs 110), the type of performance assessed and the length of PA training. Even so, without a comparison group, establishing the cause of progress is open to challenge.

Lastly, only three studies were found with an experimental design, which allows linking the results obtained through PA to outcomes in a causal relation. Sluijsmans et al. (2004) did not find statistical differences that supported an effect on the assessed performance. Kim (2009) reported significant differences, but not the effect size of the improvement. Lin (2018) related one condition of PA -anonymity with the peer feedback and perceived learning, fairness and PA attitudes: not with effects on the teaching performance.

Most of the studies had quantitative measurements, but some of these were questionable in their reliability or accuracy, perhaps due to the limiting conditions of researching in higher education contexts, such as lack of possibilities for randomizing groups or having external evaluations on student teachers. This finding supports the view that research in PA needs more systematic work (Li et al. 2020).

Moreover, the short-term parameters of the studies reviewed here must be considered. Similarly, only two of them dealt with the transference of teaching practice to real contexts (Cabello and Topping, 2018, Al-Barakat and Al-Hassan, 2009). Thus, generalization and maintenance of the effects of PA in teacher education into work contexts are not robustly supported by evidence so far.

Theoretical Basis of Peer Assessment in Teacher Education

Some authors have presented theories or ideas to help understand the role of PA with respect to performance in teacher education. For instance, negotiation of meaning is a construct that might explain the possible success of formative PA in teacher education, primarily when the student teachers design the assessment criteria (Al-Barakat and Al-Hassan, 2009; Stiggins, 1991), which has been empirically tested by Sluijsmans et al. (2004). We strongly believe the crucial benefit of this is the construction of a third space in between common knowledge and teaching knowledge, where student teachers can jointly redefine what elements constitute good teaching. This construction is triggered with the interaction with peers, through assessment reflection and discussion, as discussed by Ratminingsi, Artini and Padmadewi (2017).

Additionally, PA provides students with skills to form judgments about what constitutes high-quality work (Cabello and Topping, 2018), and this challenges their conceptions about good teaching (d'Alessio, 2018). Moreover, PA within teacher education could enhance self-regulated learning, by giving student teachers the opportunity to talk about their decisions, beliefs and practices (Vermunt and Endedijk, 2011). This might lead to them gradually becoming the owners of their learning processes when they actively construct new ideas in interaction with peers (Ratminingsih, Artini and Padmadewi, 2017). However, self-regulation of learning is a necessary but not entirely sufficient condition (in of itself) to develop pre-service teachers' conceptions and skills (Vermunt and Endedijk, 2011). Cabello (2017) argued that changes in student teachers' conceptions and practice during PA might occur on the basis of two cognitive mechanisms: projection and reflection. The assessee's performance reflects what student teachers in the assessor role would do in a similar situation. The assessors identify themselves with this practice because a peer, who shares experiences performs it directly to them. Thus, the assessors project their own possible decisions and practice on the assessee's performance. Furthermore, discussing the assessment criteria and using them to analyze their practice gives a shared space for critical reflection on typical teaching performance, possibilities and understanding which might enhance changes in their conceptions with consequences towards their practice.

Critical reflection itself is required for making reliable judgments about peers' work because a comparison of peers' performance against teaching performance criteria is required (Ratminingsih, Artini

and Padmadewi, 2017; Sluijsmans and Prins, 2006). Likewise, critical reflection can also develop self-assessment skills and help student teachers improve their practice. As Stiggins (1991, p. 38) stated, "once students internalize performance criteria and see how those criteria come into play in their own and each other's performance, students often become better performers". This might be one of the reasons for the positive results obtained by Kiliç (2016). Thus, PA is understood as a cognitive and social activity to enhance student teacher professionalism. In relation to this point, Lin (2018) states that PA in teacher education is an integral part of the learning process. We extend the argument for PST, based on the idea that discussing assessment forms or rubrics with peer assessors is crucial (Kilic and Cakan, 2007).

Considering that PA is an activity that all professionals may expect to experience at different times of their professional life, implementing PA at university seems to reflect demands for transferable skills. PA can help student teachers face changing teaching environments by giving them not only an active role in the detection and remediation of their weaknesses (Inoue, 2009) but also in the development of their communication skills and collaboration (Sluijsmans and Prins, 2006). Even so, collaboration is not the only explanation of why PA might be efficient in teacher education. The internalization of assessment criteria for enacting good quality performance (Stiggins, 1991) is an underlying principle, which might function as an enhancer of self-regulation in teaching practices (Vermunt and Endedijk, 2011), from a cognitive perspective (Kollar and Fischer, 2010).

Practical implications

Although most of the studies reviewed supported the feasibility of PA in teacher education, some studies were questionable in their methods. Disadvantages of PA can appear during its implementation. Most of these can be avoided - i.e. anxiety - but some are unavoidable, such as the time required for conducting good quality PA. It is vital that stakeholders who decide to embed PA in teacher education take careful actions to minimize the disadvantages. For instance, arranging the PA groups to avoid adversarial instances, assuring anonymity and applying the assessment criteria with others' performance first, have all been suggested (Lin, 2018).

The incorporation of PA in pre-service teacher education helps the diagnosis of competences (Sluijsmans and Prins, 2006) and understanding of how effective the teacher education program is being or has been (Pecheone and Chung, 2006). For instance, PA can reveal certain shortcomings of the students within the program, such as students lacking skills to analyze teaching practice or to give feedback (Sonmez and Can, 2010), or informing about areas of strength and weakness (Darling-Hammond, 2006). This is a form of accountability in teacher education programs. Thus, PA could bridge the gap between instruction and assessment, monitoring student teachers' progression and helping them to improve. This point might be interpreted as the potential of PA in initial teacher education, as a learning, teaching, diagnosis and intervention tool at the same time, and consequently, a cost-effective innovation in teacher education. However, to state this argument, more evidence is needed to support the ideas.

Furthermore, it would be of interest and benefit to investigate whether establishing a continuum of PA can have an impact on professional teachers' skills. For instance, comparing programs that systematically use PA from the early years of teacher education with others that only use them in the final years or even in only teaching placements. This is under the assumption that it might be advantageous to include PA when student teachers already have some practical experience, so they can use it to further strengthen their teaching competences. Preparing student teachers from the early stages of teacher education in PA skills could be an option for creating a culture of formative assessment in teacher education. Nonetheless, more robust evidence is needed to support advances in their teaching due to PA than is currently available.

The possible effect of PA on the professional identity of PST is also an exciting field to explore. It is known that the first years of teaching are essential to model teaching practice, and in this period, new teachers receive several influences from colleagues and mentors (Day, 2008). Thus, exploring the movements of identity when future teachers take on the judgement of the practice of others -and themselves- could adequately a complementary systemic for preparing teachers for self-regulated learning and lowering their dependence on others' judgements of the quality of their practices. Further research may also explore the influence of PA between peers on the self-concept of early student teachers.

van Zundert et al. (2010) and Ratminingsi, Artini and Padmadewi (2017) indicated that there is a lack of research into PA as an integral part of pre-service teacher education. Thus, the extent to which widespread PA would carry different benefits in embedded versus focal interventions is a question emerging from this review.

Of course, this review has some limitations, regarding for instance, only articles written in English were analyzed. This might unintentionally have restricted the broad view of PA. However, the reports

mentioned covered several countries and not exclusively in English speaking contexts. Thus, this review is still broad in its scope in terms of its research locations. Nevertheless, this work serves to fill the gap with respect to diverse PA implementation that exemplifies what works for PST in various contexts, which is a novel contribution to decision-making in teacher education.

Conclusions

The main contribution of this review is to illustrate the current trends in PA of teaching performance in teacher education. The studies presented here showed that PA has been applied in all the years of teacher education with small and large groups, with summative and formative objectives, face-to-face and online. The assessment criteria of the studies mentioned differed in their nature and design, with most of the studies reporting benefits of PA. Nevertheless, in some cases, the study design could only associate outcomes with PA, rather than showing plausible evidence of a causative link. Thus, these results do not form conclusive evidence. This review suggests that significant effects of PA, found within experimental studies which incorporate PST as a specific application have not been widely demonstrated yet. However, the few studies with a measurable impact of PA on teaching performance found a notable increase. This gives stakeholders ideas about the expected results if well-designed PA is implemented.

In summary, student teachers need to learn how to teach and assess performance of peers during their professional life. PA provides an assessment and learning scenario to critically reflect and judge teaching performance, which might give them the tools to monitor their practice as well as peers', based on the internalization of criteria for teaching. In addition, the extent to which PA impacts teaching practices needs further empirical support.

Acknowledgements

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Conflict of interests

The authors declare no conflict of interest.

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In Memoriam

Received: August, 19.2020.

Accepted: August, 22.2020.

In memoriam

PROF. ZORAN STANKOVIĆ, PhD

(1968-2020)

Dear colleagues and friends,

With great pain and disbelief, we found out the sad news that on May 30, 2020, after a short illness, our dear colleague, Dr Zoran Stanković, associate professor at the Department of Pedagogy at the Faculty of Philosophy, University of Niš, suddenly passed away. Only ten days earlier, we intensively cooperated on regular jobs, on numerous scientific and professional projects, as well as on issues of realization and improvement of teaching in the latest extraordinary circumstances, and today we are forced to say goodbye to him irrevocably. All this caused great sadness and grief of all members of the Department of Pedagogy, as well as our deep condolences in pain with his sister, mother and father, and especially with members of the immediate family, son Danilo and wife Aleksandra, about whom our dear colleague Zoran spoke with great love and to whom he was truly devoted both as a caring father and as a beloved husband.

Zoran Stanković was born 1968. in Aleksinac. He started his education in his hometown, where he finished lower music, primary and secondary school, and then he completed primary, master's studies, as well as a doctorate of science at the Faculty of Teacher Education / Pedagogy of the University of Niš. He attended and completed the studies at the Pedagogical Academy "Dušan Trivunac" in Aleksinac (1988-1991), and then continued his studies at the Faculty of Teacher Education in Vranje (1994-1997). He completed his postgraduate studies and defense of his master's thesis "Application of teaching at higher levels of complexity with a multimendial approach in teaching nature and society" in 2003 at the Faculty of Teacher Education, University of Niš, based in Vranje, under the mentorship of prof. Dr Bora Stanimirović. He received his doctorate in the field of didactic and methodical science, on the topic "Individualization of methodological models of teaching using electronic textbooks (educational software)", at the Faculty of Teacher Education, University of Niš, based in Vranje, in the spring of 2014, under the mentorship of prof. Dr Marjan Blažič.

Zoran Stanković has had a meaningful professional career. He worked first as a professor (class and subject teaching) at the Special Primary School "Vladimir Djordjević" in Aleksinac (1997-2000), and then as a teacher of practical teaching at the Higher School for Educator in Aleksinac (2000-2004). He came to the Faculty of Philosophy in Niš at the beginning of 2004 and worked as an assistant at the then newly established Department of Pedagogy (2004-2014). Immediately after defending his doctorate in

science in 2014, he was elected and taught as an assistant professor (2014-2019), and in mid-2019 he was elected and has been teaching as an associate professor ever since. In that teaching-scientific title, he was caught in a sudden illness and death.

During all that time, he performed various responsible functions at the Faculty of Philosophy in Niš. He was the Secretary of the Department of Pedagogy (2005-2007), the Editor-in-Chief of the *Godišnjak of Pedagogy* (since 2017), as well as the Headmaster of the Department of Pedagogy (since the school year 2016/17). In the wider social community, he expressed his active work within the Association of Pedagogues of Serbia, of which he became a member in 2014. He was also a member of the editorial board of the journal *International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE)* and a reviewer of numerous papers.

He has published two monographs and several scientific and professional studies in domestic and foreign journals, as well as collections of papers and thematic publications in the field of pedagogy. He has actively participated in numerous scientific conferences in the country and abroad. On this occasion, especially for his scientific contribution, we single out two of his published monographs: Application of teaching at higher levels of complexity with a multimedia approach (Faculty of Philosophy Niš, 2004) and Didactic innovations in theory and teaching practice (co-authored with Prof. Dr Dragan Stanojevic) (Faculty of Philosophy Niš, 2019). We also point out three very successful empirically verified educational software for preschool and younger school age children.

Scientific approach of a respected and dear colleague, prof. Dr Zoran Stanković, was characterized by a distinct multidisciplinary orientation, focused on research in the didactic-methodological area, as well as in the field of modern educational and information-communication technologies. In doing so, he always showed a completely reliable methodological grounding in empirical research. He built good theoretical starting points, as well as complete and consistent information about numerous domestic and foreign researchers and their achievements. Of special value is the fact that the stated research results and knowledge are fully applicable in direct teaching practice and significantly contribute to the training of lecturers at all educational levels. He noticed current problem questions in the field of teaching improvement with great ease, and then gave creative answers to them, as well as methodical practical solutions, which encouraged many other researchers to further consider the same and related problems.

In the field of university teaching, since his election as an assistant at the Faculty of Philosophy in Niš, and then in the teaching titles of assistant professor and associate professor, he has shown a strong commitment to work with students in undergraduate, master's and doctoral academic studies, in numerous subjects: Methods of educational work, Didactic innovations, Multimedia systems in education, Educational technologies, Pedagogical informatics, Strategies of efficient education, Methodology of teaching technical-technological subjects, Didactics of media, Methodical modeling of teaching. He was a dedicated and selfless mentor to many students who did final and master's theses, and he showed the same kind of dedication and dedication in cooperation with younger associates, with all colleagues from the Department of Pedagogy, as well as associates and teachers of the Faculty of Philosophy and other universities. and scientific institutes at home and abroad.

He performed the function of the head of the Department of Pedagogy at the Faculty of Philosophy, University of Niš, devotedly and correctly, trying to find the best solutions for continuous improvement and development of study programs, as well as direct teaching in those programs. He showed a similar kind of dedication, dedication, goodwill and responsibility as the editor-in-chief of the scientific journal *Godišnjak of Pedagogy*.

At the end of this obituary, deeply overwhelmed with sadness and disbelief, you will allow me to be subjective and point out numerous examples of personal scientific and teaching cooperation with my colleague Zoran, in which I could testify to his high scientific and human qualities. I realized that as a member of his commission for the defense of his doctoral dissertation, as well as the commission for his election to the teaching-scientific titles of assistant professor and associate professor. We have also collaborated as reviewers of scientific publications, and as members of numerous commissions for the defense of graduate, final and master's theses, and I am proud to emphasize that we have done more joint scientific research. We have published a part of that in leading domestic and international journals, and some papers will soon be published, but unfortunately, their colleague Zoran will not receive them. The freshest and most complete impression on me was left by the direct collaboration on the review of the textbook manuscript Statistical Tests in Pedagogical Research, which I did together with my colleague Jelena Osmanović, and for which my colleague Zoran gave us a series of selfless, useful and precise suggestions. would get such a clear textbook concept.

Premature death of our esteemed and dear colleague, prof. Dr Zoran Stanković, as a caring father and loyal husband, a devoted brother and son, will always be the greatest loss and suffering for his family

and loved ones. For the Faculty of Philosophy in Nis, and especially for the Department of Pedagogy, it will be an irreparable departure of teachers and colleagues in those professional years when he was ready to contribute the most to his institution and his scientific community.

May he have eternal glory and praise!

Prof. Dr. Jelena Maksimović
Department of Pedagogy
Faculty of Philosophy in Niš

LIST OF REVIEWERS FOR YEAR 2019

International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE) would like to acknowledge the following reviewers for their assistance with peer review of manuscripts for issues in 2019. Their comments and suggestions were of great help to the authors in improving the quality of their papers. Each of the reviewers listed below returned at least one review for these issues.

Thank you Reviewers!

List of International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE) reviewers in 2019:

- Aleksandar Stojanović, University of Belgrade, Teacher Education Faculty, Serbia
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- Alla Belousova, Don State Technical University, Russia
- Amirreza Farahbood, Islamic Azad University Central Tehran Branch, Iran
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- Lyudmila Kruteleva, Academy of Psychology and Educational Sciences of Southern Federal University, Russia
- Maria Vyshkvyrkina, Southern Federal University, Russia
- Mariana Mateeva Petrova, St.Cyril and St.Methodius University of Veliko Tarnovo, Veliko Tarnovo, Bulgaria
- Marina Bogdanova, Institute of Philosophy Southern Federal University, Rusia
- Miomira M. Đurđanović, University of Niš, Faculty of Arts, Niš, Serbia
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- Zifa Temirgazina, Pavlodar State Pedagogical University, Kazakhstan
- Zoran Mastilo, University of East Sarajevo, Faculty of Business Economics Bijeljina, Republic of Srpska

AUTHORS` GUIDELINES

Types of contributions

Original Research, Review Articles, Studies and articles, Book Reviews, Case Studies and Monographic studies.

BEFORE YOU BEGIN

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Authorship should be limited to those who have made a significant contribution to the conception, design, execution, or interpretation of the reported study. All those who have made significant contributions should be listed as co-authors. Where there are others who have participated in certain substantive aspects of the research project, they should be acknowledged or listed as contributors. The corresponding author should ensure that all appropriate co-authors and no inappropriate co-authors are included on the paper and that all co-authors have seen and approved the final version of the paper and have agreed to its submission for publication.

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The author of the paper should be the person who made the greatest contribution to the creation of the work. All those who contributed to the making of the work should be listed in the paper and as co-authors. If there are other contributors who took part in the preparation of making the same work should be listed or admitted as associates.

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