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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, co-publisher is Don State Technical University, Russian Federation..

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:

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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.

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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, DOIs and 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.

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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 2-6 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 (10 original researches and 1 review article). 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.

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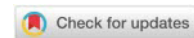
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Partnership Between Teachers and School Counsellors for Quality Learning and Work in the Community

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Abstract: This article discusses the topic of schools as a learning communities from the perspective of the collaboration of two groups of school workers - teachers and school counsellors. The introduction defines how the concept of schools as learning communities is understood and how it is related to the concept of learning organizations. It also further elaborates on the key characteristics of learning communities. The first premise of the contribution is that through joint effort and collaboration, counsellors and teachers can more efficiently face the practical challenges of their work, both in providing help and encouragement to students and in ensuring better classroom work on the level of the whole school. The second is that they are important partners to each other in their professional development through joint reflections of their educational principles and expectations. The article further focuses on the quality of cooperation between counsellors and teachers in primary and secondary schools in Slovenia. The results of the empirical research show that both groups of school workers tend to evaluate their cooperation as either very good or good while teachers tend to be more satisfied. The questionnaire responses show that teachers believe collaboration can benefit them, however that they frequently leave decisions about work with specific students or classes to the counsellors. Establishing and maintaining partner collaboration is always a challenge, however, it is also crucial for effectively confronting contemporary challenges and ensuring quality learning for all and the contribution thus concludes with guidelines for establishing such a beneficial collaboration.

Keywords: partnership, school counsellors, teachers, professional learning community, professional development.

Introduction

School as a professional learning community

In complex, knowledge-using societies, the school as an institution should become a professional learning community. In 1990, Senge published a highly influential monograph *The Fifth Discipline: The Art and Practice of the Learning Organization*. After that, concepts such as learning organization and professional learning community quickly became very popular in the field of education, because they were in line with school reforms and they portrayed the ideal of what schools should be (Field, 2019; Kelchtermans, 2006; Lieberman, 2012; Stoll and Kools, 2017). For example, Hargreaves (2003, p. 132) points out that the “*idea of the learning community*” should be “at the core of the school’s mission”. Research literature also increased rapidly, addressing the success of these endeavours (Field, 2019; Lieberman, 2012) and the difficulty of forming such communities, since they are usually at odds with the existing school culture in which teachers are isolated from each other, rarely working in teams and solving problems together (Lieberman, 2012). Furthermore, they are not ready for joint learning and change (Hodkinson and Hodkinson 2003, 2004 see in Admiraal et al., 2019; Welsh et al., 2021). Researchers have similarly focused on conceptualizing learning organizations and identifying their key characteristics. Many authors argue that the concepts are not clearly defined (Marsick and Watkins, 2003 see in Welsh et al., 2021; Stoll and Kools, 2017), and that it is not really clear what a learning organization is (Field, 2019). Additional confusion is caused by the body of research on professional learning communities with emphasis on the community. Stoll and Kools (2017) conclude that emphasizing the significance of the community is at the core of the concept of the school as a learning organization: the emphasis is on mutually supportive relationships; developing shared norms and values; mutual trust; creating a school culture that influences how we perceive reality, approach problems and learning; committed focus on

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teaching and learning, and collective responsibility. The concept of the school as a professional learning community captures the individual, collaborative and collective aspects of professional learning in schools (Admiraal et al., 2019, p. 3).

Field (2019) is particularly critical of the concept of learning organization, claiming that there is no agreement about what the term "learning organization" means, which becomes particularly evident when we try to measure how closely a school resembles a learning organization. She maintains that it is not possible to distinguish between "learning" and "non-learning" organizations and she opposes the use of this term, stating that it is "hollow rhetoric" rather than "attainable reality". The problem arises when we perceive the formation of a learning organization or community as something final and instead of a direction to head in. In this changing global world, we can connect in very different ways, and these new forms of organization are characterized by being loose, flexible, collaborative, and purposeful (Lieberman, 2012). It is important, however, that the formation of different groups due to joint work and learning is always given meaning (Welsh et al., 2021), that we share goals, develop trusting relationships, do research together and seek the best possible solutions to the challenges of everyday practice (Lieberman, 2012).

However, when describing the ideal of the learning organization we too often "ignore the political aspects of learning, and instead make the unrealistic assumptions that the interests of all school staff are, or should be, aligned" (Field, 2019, p. 1112). Although we accept that the development of a learning organization is a necessity for dealing with the rapidly changing external environment anywhere in the world, as indicated by the application of the concept in a wide range of countries, contextual factors should also be considered, from the social climate to the assessment methods of failed trials and innovations (Stoll and Kools, 2017). It is important to be aware that different stakeholders may have different professional beliefs, different goals and interests. The school, along with all its members, is embedded in the wider community in a great variety of ways (Bečaj, 2001; Lupton, 2011; Vec, 2009). It is possible systematically to establish collaboration with individuals and institutions in the community and develop partnerships in cocreating learning opportunities, whereby participants mutually learn, change and create new knowledge (Šteh et al., 2018). We advocate using the concept of learning community precisely because educators can connect in their work in various ways and in different groups, including students, parents as well as individuals and institutions outside the school, share their experiences, solve problems, learn and grow together.

Admiraal et al. (2019) find that the development of professional learning communities requires, in particular, professional learning opportunities as well as collaborative work and learning. Additionally, they emphasize the importance of activities in connection with a shared school vision on learning, change of school organization and learning leadership. It can be concluded that authors are united in emphasizing the formation of a common vision, collaborative culture and opportunities for joint work and learning, creating opportunities for the development of all and especially striving for students' successful learning and their personal development. For example, Talbert (2010) emphasizes that professional community building is not just about creating or defining collaborative work for teachers and other educators. It means "shifting a focus on teaching toward student learning, creating rich knowledge resources and networks, and engendering a social service ethic and mutual accountability" and "changing the way schools and the school system operate and how professionals at all system levels work to foster success for all students" (p. 568). Improvement of teaching practice develops through critical, reflective and constructive inquiry and dialogue (Schlager and Schank, 1997 as cited in Ward and Selvester, 2012). According to Ward and Selvester (2012, p. 112), professional learning communities "provide a social context, network and supportive structure" for the professional development of employees and a continuous improvement of teaching and learning.

One of the basic challenges is to what extent schools provide a learning environment that encourages, enables and provides conditions to establish a professional learning community to the greatest possible degree; another is how to promote quality collaboration between educators at a school. We start from the assumption that educators are key actors in creating opportunities for the mutual learning of and collaboration between the members of the school community and their collaboration with the wider community (Šteh et al., 2018). Head teachers certainly play an important role (see Welsh et al., 2021; Schleicher, 2015; McCarty, Wallin and Boggan, 2014), but in this paper we will focus on the collaboration between counsellors and teachers.

The role of school counsellors and their collaboration with teachers

In Slovenia, the school counselling service is one of the subsystems of a school, so its primary goal is determined by the primary goal of the school. Different experts (e.g. pedagogues, psychologists, social workers, social pedagogues, special pedagogues, etc.) work in the school counselling service. "It is an

interdisciplinary professional school service participating in solving complex pedagogical, psychological and social issues in schools concerning everybody attending or working there” (Gregorčič Mrvar et al., 2019, p. 92).

According to Resman (1999) and the *Programme guidelines (Programske smernice ... , 2008a, 2008b)*, school-based counselling work as conceptualized in Slovenia has never been limited to assisting students in their personal development and learning; rather, it is a developmental and preventative service aimed at the development of students, and the school as a whole. As such, it provides not only student counselling, directly helping students with their development, but it also helps indirectly the functioning of the school in terms of planning, implementing and evaluating everyday educational work as well as planning, creating and maintaining favourable conditions for a safe and encouraging educational environment that allows students optimum progress (*Programske smernice ... , 2008a, 2008b*). This means that the counsellor, in addition to working directly with students, also works intensively with the head teacher, teachers, all the school staff and the other stakeholders who significantly co-create the school environment and the educational work programme. The range and diversity of counsellors' areas of activity suggest a special complexity of their work and presuppose the necessity of collaboration with various individuals inside and outside the school.

It should be taken into account that in accordance with the modern strategy of counselling, an important part of counselling is intended for all students; therefore, counselling should be redirected from purely remedial work to “*proactive, preventative and developmental work*” (Resman, 2007, p. 125). This attitude directs the counsellor towards collaboration with teachers on the basis of mutual and equal relationships, establishing the so-called “*consultation model of collaboration*”. The work of school counsellors at school and their collaboration with teachers does not reduce or narrow teachers' professional work. It concerns the professional work of both groups of educators and their mutual complementarity and support, which proves to be an important factor in their professional development (see Čepić, Kalin and Šteh, 2019).

The quality of networking and establishing appropriate partnerships between educators includes mutual trust, high professionalism in the performance of work and respect for each other's responsibilities. In the process, partners share responsibility for the process and outcomes (Sheridan, Napolitano and Swearer, 2002). In collaboration, it is important to support each other in the joint effort to develop the individual student and the class as a whole, which depends on the existing school culture while it also influences its formation (Bečaj, 2001; Kelchtermans, 2006). School culture is understood here in Schein's 1985 definition as “*the deeper level of basic assumptions and beliefs that are shared by members of an organization, that operate unconsciously, and that define in a basic 'taken-for granted' fashion an organization's view of itself and its environment*” (see Kelchtermans, 2006, p. 230). It would be ideal to achieve a collaborative culture, which Hargreaves characterizes as voluntary and spontaneous involvement in joint work, without an external agenda (see Kelchtermans, 2006). By working together, teachers and counsellors can work better in helping and encouraging individual students, as well as in promoting quality learning and teaching in the classroom and, moreover, in forming a class community, fostering interpersonal relationships, developing an inclusive culture and promoting holistic personal development for all students (Gregorčič Mrvar et al., 2020). Teachers are constantly facing the challenges of quality teaching, and this is where their collaboration with counsellors can play a supportive role: following the development of the subject area, introducing new didactic approaches and information and communication technology, taking into account students' individual characteristics, appropriate adaptation of lessons to diverse students, etc. In addition to other teachers, school-based counsellors are especially valuable to teachers, since they are more likely to take on consultation and coordination in this area of work, with due regard for students as partners and co-creators of the educational process.

The counsellor and the teacher are partners in their professional development, in creating opportunities for reflection on work and promoting continuous learning, all of which are foundations of the learning community (Šarić and Šteh, 2019). Collaboration is a demanding task both at the level of professional duties and at the purely personal level of the cooperation between two individuals that they define with their knowledge, responsibility and specific personality traits (Kalin, 2019; Kwakman, 2003, see in Kelchtermans, 2006; Vermunt, 2014). Some typical problems that arise in the interaction between the counsellor and the teacher may relate to excessive and/or unexpressed expectations of each other because they are not sufficiently familiar with each other's tasks and the opportunities they have for their work; experience of work overload; problems at the level of interpersonal communication (noise in communication, misunderstanding); unrelated and uncoordinated work with an individual student or group of students; shifting responsibilities onto each other and ambiguities in the division of roles and responsibilities; a feeling of threat may arise when one of the partners in the collaboration feels that the

other is interfering in his/her professional field; doubt in each other's competence; lack of competences for teamwork; difficulties in establishing an interpersonal relationship of trust and respect, etc. It is important to raise awareness that many of the problems faced by both teachers and counsellors require long-term and intensive work and that results cannot be expected immediately (Kalin, 2004, 2019). They both need to make sense of their joint action, to be aware that this will benefit students and their parents, as well as themselves, since they can share power and responsibility, come up with solutions that they would not come up with on their own, learn together, grow professionally and personally. It is imperative, however, that this accords with the existing school culture and that the school as an organization supports such collaboration at the systemic level. Stoll and Kools (2017, p. 7) highlight the following action-oriented dimensions on which the collective endeavour should be focused: 1) developing and sharing a vision centred on the learning of all students; 2) creating and supporting continuous learning opportunities for all staff; 3) promoting team learning and collaboration among staff; 4) establishing a culture of inquiry, innovation and exploration; 5) embedding systems for collecting and exchanging knowledge and learning; 6) learning with and from the external environment and larger learning systems; and 7) modelling and growing learning leadership.

The purpose of the research study

The findings discussed in this article are a part of the research study conducted to gain a comprehensive insight into the operation of the school counselling service in Slovenian primary and secondary schools (Gregorčič Mrvar et al. 2020). We were particularly interested in school counsellors' collaboration with various actors in the school, from students and parents to teachers and head teachers. Here, we focus on the quality of collaboration between school counsellors and teachers, focusing on how the collaboration and its characteristics are perceived by school counsellors and teachers. During our study, the following sets of research questions were asked: 1) What is both groups' satisfaction with the collaboration? How do teachers assess the individual characteristics of collaboration with school counsellors? Do teachers differ in their assessments of the collaboration according to years of teaching? 2) How do counsellors assess the frequency of initiatives suggested by themselves as well as teachers and their response? 3) What do counsellors and teachers see as the obstacles to mutual collaboration? Based on the research findings, we developed guidelines for establishing and maintaining quality mutual collaboration between teachers and counsellors.

Materials and Methods

The study followed the principles of qualitative and quantitative methodologies. The descriptive and causal non-experimental method was used.

The non-random sample of counsellors included 315 counsellors, just under 97% were women and just over 3% were men. The average age of the participants was just over 44 years, on average the counsellors had more than 20 years of work experience, of which over 16 years in education. Most counsellors worked in primary schools (just under 77%), and a little over 23% were employed in secondary schools. Of the 70 counsellors who came from secondary schools, 38 (54.3%) worked in grammar schools (gimnazije), and the rest (45.7%) in secondary vocational and technical schools.

We asked all the teachers of the randomly selected schools to participate in the research. Thus, 501 teachers responded and were included in the sample. More than a half of the teachers who answered the question about where they taught came from primary schools (251, i.e. 50.3%), and slightly less than a half of them taught in secondary schools (248, i.e. 49.7%). On average, the surveyed teachers were 46 years old and had been teaching for an average of 20 years.

We designed two questionnaires for the purposes of the research study, which were sent to school counsellors and teachers via a web link in January 2018. To increase the response rate the counsellors and teachers were subsequently invited to participate in the survey, so that the survey lasted until mid-April.

The questionnaire for school counsellors contained 48 questions, it included assessment scales and Likert-type attitude scales. It also contained four open-ended questions and eight combined questions. In two questions, we asked the school counsellors to rank individual categories.

The questionnaire for teachers contained 22 questions, including assessment scales and Likert-type attitude scales. In two questions, the teachers had to rank the listed items which were identical in content to the items in the questionnaire for school counsellors. The teachers had the opportunity to express their views on the work of the school counselling service and on work with counsellors in three

open-ended questions. In this paper, we will present only a section of all the obtained findings in order to answer the research questions asked above.

The data were processed with the SPSS 25.0 software package. We used the frequency distribution of descriptive variables and the basic descriptive statistics of numerical variables (M and SD). Due to the nature of the variables (the questionnaires mostly contained descriptive variables), we used the χ^2 -test to test the hypotheses.

Results and Discussions

We start from the assumption that, in addition to cooperation between teachers and students, collaboration between counsellors and teachers is especially important for the quality work and learning of all those involved in the educational process in primary and secondary schools and for school development. This is also specified in the programme guidelines for the counselling service in primary and secondary schools ([Programske smernice ...](#), 2008a, 2008b).

The quality and planning of collaboration between school counsellors and teachers

Counsellors carry out an important part of their tasks in collaboration with teachers, both in providing assistance to students and in supporting teachers in their educational work. We asked the responding counsellors and teachers about their overall satisfaction with the collaboration. For the teachers, the question referred to the assessment of their collaboration with counsellors, and for the counsellors to collaboration with teachers. On a five-point scale, they could choose between the following assessments: "very good", "good", "neither good nor bad", "bad", "very bad". Due to the low number of responses, we combined the categories "bad" and "very bad".

Table 1.
Satisfaction with collaboration as expressed by teachers (T) and school counsellors (SC)

		In general, how do you assess your collaboration with teachers/counsellors at the school?				Total
		Very good	Good	Neither good nor bad	Bad or very bad	
SC	f	92	172	22	2	288
	f%	31.9	59.7	7.6	0.7	100.0%
T	f	250	183	43	19	495
	f%	50.5	37.0	8.7	3.8	100.0%
Total	f	342	355	65	21	783
	f%	43.7%	45.3	8.3	2.7	100.0

$$(\chi^2 = 42.000, g = 3; p = .000)$$

In the entire sample of teachers and counsellors, the answers "very good" and "good" prevailed. However, when we examine the results by groups of respondents, the differences between the teachers and school counsellors regarding the assessment of their collaboration are statistically significant. A half of the teachers rated this collaboration as very good, while just under a third of the school counsellors did so. Almost 60% of the latter rated the collaboration as good. The difference is also noticeable in the "bad" or "very bad" category. This was the opinion of 19 (3.8%) surveyed teachers and only two surveyed school counsellors. The teachers were more satisfied with working with school counsellors, except for a few individual teachers. On the other hand, the counsellors experienced slightly less satisfaction in the collaboration. The question is what the reason is for such differences. Perhaps the school counsellors' expectations were slightly greater, and they wished for more responsiveness from teachers. The teachers, on the other hand, may not have been aware of on what challenges and how else they could work with school counsellors.

We were interested in whether the teachers participating in the study differed in their assessments of the characteristics of collaborating with counsellors according to years of teaching. According to the years of teaching, the teachers were first divided into 5 categories, following the development of teachers' careers in the [Huberman model \(1993\)](#) and the S-model, which takes into account specifically Slovenian circumstances ([Javrh, 2008](#)). Due to the lower representation of teachers with shorter careers, we grouped into the same category those who had entered teaching and faced survival and discovery (up to 3 years of

teaching) and those who were stabilizing in their role as teachers (4 to 6 years of teaching). Interestingly, this was the group that most often rated their collaboration with counsellors as very good (66.7%), which indicates that counsellors were probably an important support for them in entering the profession and in finding their role in school. The differences in years of teaching were the only ones confirmed as statistically significant ($F = 22.204$, $g = 12$, $p = 0.035$, $n = 485$) with regard to the general assessment of satisfaction.

In addition to the general assessment of collaboration with school counsellors, we looked for a more accurate insight into how the teachers evaluated existing collaboration with school counsellors. Therefore, we provided them with statements that indicated their (dis)satisfaction with the collaboration and the work of school counsellors, and the teachers rated to what extent they agreed with the statements on a five-point scale, with 1 meaning that they did not agree at all and 5 meaning they strongly agreed with the statement.

Table 2.
Teachers' assessment of collaboration with school counsellors and their work

Assessment of collaboration with the school counsellors		I strongly disagree	I disagree	Neither – not	I agree	I strongly agree	Total	M	SD
Counsellors impose additional work on me, often providing no support.	f	124	181	107	51	13	476	2.26	1.05
	f%	26.1	38.0	22.5	10.7	2.7	100.0		
I think counsellors are too preoccupied with things that aren't part of their job.	f	113	185	101	49	28	476	2.36	1.13
	f%	23.7	38.9	21.2	10.3	5.9	100.0		
I don't turn to counsellors because I don't think they can support me in my work.	f	194	196	51	28	11	480	1.89	.97
	f%	40.4	40.8	10.6	5.8	2.3	100.0		
If you consult counsellors, you somehow indicate that you are not in control of the subject and the situation in the classroom.	f	265	161	30	18	4	478	1.61	.83
	f%	55.4	33.7	6.3	3.8	0.8	100.0		
School counsellors are generally successful in working with students.	f	5	27	92	253	87	464	3.84	.83
	f%	1.1	5.8	19.8	54.5	18.8	100.0		

Table 2 indicates that, on average, the teachers mostly agreed that school counsellors were generally successful in working with students ($M=3.84$, $SD=0.83$). On the other hand, on average, they did not agree that counsellors were too preoccupied with things that were not part of their job ($M=2.36$, $SD= .13$) and they similarly did not agree that counsellors imposed additional work on them, often without support ($M=2.26$, $SD=1.05$). It is particularly encouraging that they agreed in the smallest share with the statements that they did not turn to counsellors because they thought they could not support them ($M=1.89$, $SD=0.97$) and that by consulting counsellors you demonstrated that you did not master the subject and the situation in the classroom ($M=1.61$, $SD=0.83$).

The teachers' responses show that they were satisfied with counsellors' work and that they did not perceive working with them as a sign of failure and incompetence. It is important to establish a safe environment and a relationship of mutual trust so that teachers can share with counsellors the concerns, problems and dilemmas they face when working in the classroom or with individual students and parents without feeling threatened (Korthagen, 2017; Rodgers, 2002). Or, as one teacher put it in an open-ended

question about collaboration: “I take the school counselling service as a place where students and staff can talk honestly, open up about the problems we face in our work, feel heard and, most importantly, feel safe knowing that our trust won’t be betrayed.” The teacher further wondered whether there was such a counselling service, implying that in some places it was still a challenge for counsellors and teachers to establish the basic conditions for mutual collaboration. Furthermore, what is the quality of this mutual collaboration and is it a partnership in the true sense of the word, as defined by, for instance, [Sheridan, Napolitano and Sweareret. \(2002\)](#), meaning that those involved co-create and share common goals, jointly plan and implement activities, learn from each other, participate to the best of their ability and share responsibility? Or does this satisfaction with the work of counsellors stem more from a clear division of tasks and responsibilities for carrying out these tasks?

Next, we enquired about the extent to which the teachers thought that collaboration with counsellors was defined by the following characteristics: agreeing at the beginning of the year on ways to cooperate, school counsellors’ work with individual students in the class and the class as a whole, leaving the decision on work with students or the class to the counsellor, counsellor informing teachers about possible agreements with students or their parents. The teachers responded on a scale from 1 to 5: 1 – not true at all, 2 – not true, 3 – neither true nor false, 4 – true, 5 – very true.

Table 3.
Some characteristics of collaboration with school counsellors as described by teachers

Characteristics of collaboration with school counsellors		Not true at all	Not true	Neither true nor false	True	Very true	Total	M	SD
I agree with the counsellor at the beginning of the year what kind of collaboration I would like in relation to students.	f	49	55	130	202	53	489	3.32	1.12
	f%	10.0	11.2	26.6	41.3	10.8	100.0		
In recent years, the counsellor has worked with individual students from the classes I teach.	f	7	8	41	253	167	476	4.19	.78
	f%	1.5	1.7	8.6	53.2	35.1	100.0		
In recent years, the counsellor has worked with groups of students from the classes I teach.	f	45	78	86	180	86	475	3.39	1.23
	f%	9.5	16.4	18.1	37.9	18.1	100.0		
I leave it up to the counsellor to decide how he/she will do the counselling work with individual students or whole classes.	f	8	24	111	209	123	475	3.87	.91
	f%	1.7	5.1	23.4	44.0	25.9	100.0		
The counsellor informs me about what has been agreed with individual students or parents.	f	15	12	50	221	166	464	4.10	.92
	f%	3.2	2.6	10.8	47.6	35.8	100.0		

As seen in Table 3, most teachers agreed (88.3 % selected the level true or very true) with the statement that the school counsellor in recent years had dealt with individual students from the classes taught by the teacher. This is also the answer in which the responding teachers were the most consistent (SD= .78). They also largely agreed with the statement that the counsellor informed them of agreements with individual students or their parents. The data confirms the awareness of the importance of mutual communication between teachers and counsellors when working with individual students.

The smallest share of the respondents stated that they agreed with the school counsellor on the collaboration they wanted at the beginning of the school year. The answer may indicate problems

regarding the degree to which the counsellor's work in classes is systematic and planned. Moreover, it is a question of planning on collaboration at the level of work with classes. This could be the reason why 25.9% of the teachers stated that it was not true or not true at all that counsellors carried out group forms of work with students from the classes that the teachers taught. The conclusion can be supported by the explanation of one of the teachers: "*I am mostly satisfied with the work of the school counselling service, I only miss collaboration related to the burning issue all around us (various workshops and talks for parents, teachers and children). I don't think it's right for them to intervene only when something is already wrong. We urgently need prevention, not just remedy!*" A good quarter of the teachers stated that it was very true that they left the decision to the counsellor on how to do counselling work with individual students or the whole class. On the one hand, this can indicate the teachers' trust in the professional competences of counsellors but, on the other hand, it can imply the danger of leaving work with classes and individuals entirely in the hands of counsellors. The partnership model of collaboration presupposes mutual agreement and joint work of all, because it derives from the relationship of reciprocity, equality and equity based on collaboration and consultation (Sheridan, Napolitano and Swearer, 2002). For example, as early as 1997 Resman emphasised the importance of going beyond the notion of counselling as mainly remedial work when certain problems arise at the level of individuals or the class community. It will be necessary to take into account the consequences of the pandemic, which has brought numerous problems and challenges for each of us by stalling the public life we were used to, a year-long school closure, distance learning and life in small family bubbles. There is more psychological irritability, feelings of anxiety, mental health problems, and it is even more difficult for the children and adolescents (as well as their parents or carers) who come from so-called vulnerable groups, that is, from socially underprivileged families, families with difficult interpersonal relationships, for immigrants, students with special needs, mental health problems, etc. (Gregorčič Mrvar et al., 2021; Lee, 2020). Consequently, in the current situation we can expect a great need for remedial treatment, so that counsellors will have even less time for development and prevention, which is the predicament they reported about even before the outbreak of the pandemic (Gregorčič Mrvar et al., 2020).

Among other things, we asked the counsellors about initiatives for collaboration with teachers (see Table 4). A half (50.2%) of them thought that they were the ones who often took the initiative to collaborate; about a third (32.3%) estimated that they always approached teachers when they noticed their interest to collaborate and 56.8% of them often did so. On the other hand, almost a half (48.9%) of the counsellors estimated that they sometimes left the initiative for counselling to teachers and responded only when teachers contacted them; just under a third (31.3%) did so frequently.

Table 4.
Frequency of initiatives and responses by teachers and counsellors as assessed by counsellors

Frequency of initiatives to work with teachers		Never	Rarely	Sometimes	Often	Always	Total
The initiative is mine. I inform teachers about the work in advance and offer the possibility of consultation, and they either accept it or not.	f	1	17	111	143	13	285
	f%	0.4	6.0	38.9	50.2	4.6	100.0
When I notice that a teacher expresses interest in participating, I approach her/him.	f	0	0	31	162	92	285
	f%	0.0	0.0	10.9	56.8	32.3	100.0
I leave the initiative for collaboration to teachers. I consult them when they approach me.	f	2	44	139	89	10	284
	f%	0.7	15.5	48.9	31.3	3.5	100.0
I feel that teachers are embarrassed to approach me for consultation.	f	125	107	42	9	1	284
	f%	44.0	37.7	14.8	3.2	0.4	100.0
I feel that my efforts for professional collaboration is seen as redundant by teachers, that they do not appreciate them.	f	104	108	52	12	1	277
	f%	37.5	39.0	18.8	4.3	0.4	100.0

The assessments of the majority of the responding counsellors show that the basic conditions for quality mutual collaboration are mostly in place in schools (Table 4). Forty-four percent of the counsellors stated that they never felt that teachers were embarrassed to approach them for consultation, or that it was only rarely the case (37.7%). Of course, teachers should also be asked about this. Most counsellors (39%), on the other hand, rarely felt that their efforts for professional collaboration were seen as redundant and not appreciated by teachers, while 37.5% said that they never had this feeling. At the same time, almost a fifth (18.1%) stated that they sometimes felt this. In these cases, it would be important to clarify mutual expectations, and it is the task of counsellors to present to teachers their work and the areas where they could participate to improve educational work.

We also asked the counsellors about how teachers accepted their efforts to collaborate and consult each other. The vast majority of the counsellors (87.9%) estimated that teachers most often accepted professional collaboration and joint efforts in resolving specific situations. Only 5% of the counsellors estimated that teachers most often reacted as if they had been forced to do something, while three (1.1%) reported feeling that teachers did not care. Six percent of the counsellors explained the most common reaction to their efforts for collaboration and consultation under the "other" answer. The latter most often highlighted that teachers reacted differently to their initiatives for collaboration, that some were willing to cooperate, that they sought help, while others perceived this as interference or additional work. It is probably crucial that everyone involved is willing to learn together and change the established patterns of behaviour, beliefs and views on their roles as educators, changing the perspective on both teaching and their own learning (Makovec, 2018; Vermunt, 2014; Welsh et al., 2021). This willingness to learn, in conjunction with other personal factors such as prior experience, professional identity, self-confidence, tolerance for uncertainty, etc., depends on contextual factors, too (Vermunt, 2014). The organization of the learning environment is of particular importance (do the structures allow for collaborative work and learning, collaboration in teams) (Admiraal et al., 2019; Bakkenes, Vermunt and Wubbels, 2010 see in Vermunt, 2014; Stoll and Kools, 2017; Welsh et al., 2021) as is the culture of the school (is it competitive, in which educators have to prove themselves constantly, does directive leadership prevail, or is it open to collaboration, innovation and exploration) (Stoll and Kools, 2017).

Obstacles to quality collaboration between school counsellors and teachers

The challenge of any collaboration is how to overcome obstacles that arise for various reasons – from very objective ones to those related to the personal traits of participating individuals, their knowledge, views, beliefs, attitudes, and values. Today, we expect educators to have developed skills in working in teams of experts and cooperating with others inside and outside the school. In 1995, Fullan wrote that teachers were expected to "*become committed to, skilled at, and involved in (indeed helping to create) collaborative work cultures inside and outside the school*" (Fullan, 1995, p. 233), and the same applies to counsellors.

We provided the teachers and counsellors in our study with some main obstacles for them to assess. The answers they could give were: 1 – no obstacle, 2 – a minor obstacle, 3 – an obstacle, 4 – a major obstacle, x – I cannot assess. We were interested in whether the teachers' and counsellors' answers regarding obstacles to collaboration differed in any way. As the data in Table 5 show, the differences between the counsellors and teachers in the obstacle assessment are statistically significant in all the items.

Table 5.
Views of school counsellors (SC) and teachers (T) on obstacles to collaboration

Obstacles to collaboration			Counsellors' and teachers' assessments of individual statements				N	χ^2 -test p
			no obstacle	a minor obstacle	an obstacle	a major obstacle		
Lack of knowledge of each other's work and tasks	SC	f	78	112	58	30	278	18.491
		f%	28.1	40.3	20.9	10.8	100.0	.000
	T	f	175	139	108	23	445	
		f%	39.3	31.2	24.3	5.2	100.0	
Overburdening with work in both, the teachers and the counsellors	SC	f	12	58	111	99	280	16.547
		f%	4.3	20.7	39.6	35.4	100.0	.001
	T	f	55	111	159	128	453	
		f%	12.1	24.5	35.1	28.3	100.0	
Poor communication	SC	f	107	107	52	13	279	30.622
		f%	38.4	38.4	18.6	4.7	100.0	.000
	T	f	243	109	60	47	459	
		f%	52.9	23.7	13.1	10.2	100.0	
Bad experiences of collaboration	SC	f	153	95	21	8	277	36.101
		f%	55.2	34.3	7.6	2.9	100.0	.000
	T	f	284	77	61	36	458	
		f%	62.0	16.8	13.3	7.9	100.0	
Different expectations about collaboration	SC	f	56	123	68	33	280	50.029
		f%	20.0	43.9	24.3	11.8	100.0	.000
	T	f	209	125	89	39	462	
		f%	45.2	27.1	19.3	8.4	100.0	
Differences in professional views on work in the classroom and with students	SC	f	59	120	70	29	278	49.119
		f%	21.2	43.2	25.2	10.4	100.0	.000
	T	f	212	127	78	34	451	
		f%	47.0	28.2	17.3	7.5	100.0	

In all the cases of possible obstacles, except for prior bad experiences of collaboration, the school counsellors saw more obstacles to collaboration than the teachers. The counsellors thus saw more obstacles than the teachers in the lack of knowledge about each other's work and tasks, in the workload on both sides, in differences in expectations about collaboration and in differences in professional views on work in the classroom and with students. For the most part, however, they both agreed that they were least hindered by bad experiences of mutual collaboration and poor mutual communication. The teachers were even more likely to say that this did not present an obstacle at all. This is certainly a good indicator because effective communication between educators is one of the key conditions for quality collaboration and for facing work challenges jointly (Welsh et al., 2021). Without mutual respect, genuine interest in each other's work, worries and perspective – as well as trust in each other's strength and competence – there can be no real foundations for quality collaboration. Or, as one of the teachers put it: "Collaboration depends on both people's willingness to listen to each other." Many obstacles to mutual collaboration (such as differences in professional views and expectations, lack of knowledge of each other's work and tasks) are largely related to clarifying the role of counsellors and teachers and their expectations of each other through conversations between educators.

As far as educators' overburdening is concerned, it would make sense to consider setting priorities for joint work; we assume that both teachers and counsellors would save some time and avoid extra work if they found time to agree on how to share work and collaborate in individual areas of work. This, in turn, requires willingness to cooperate with each other and awareness that the effort and time invested will bring benefits to all stakeholders in the educational process. First, quality collaboration can lead to a better professional response to and work with individual students, classes and parents when teachers and

counsellors face moral, social and emotional dilemmas in our postmodern societies. Quality collaboration contributes to good interpersonal relationships and a culture of collaboration and, finally, it enables professional development for both teachers and counsellors. The following statement illustrates that some professional communities have achieved this: *“It’s great to work with colleagues from our counselling service and colleagues from other schools, because we’re aware that work is successful for all stakeholders only through collaboration and teamwork. I like it because we debate a lot constructively and look for solutions.”*

Conclusions

The findings of our study show that both counsellors and teachers are generally satisfied with their collaboration, especially when there are very clear boundaries between their tasks and responsibilities. However, partnership – when they jointly plan activities and goals, participate in these activities and share responsibility – is much more difficult to achieve. The programme guidelines for primary, grammar schools, lower and upper vocational schools, technical schools and boarding schools ([Programske smernice ..., 2008a, 2008b](#)) emphasize the importance of consultation, planning, implementing and evaluating schoolwork together. This is related to certain basic principles of the work of the school counselling service which must be taken into account when collaborating with teachers: in particular, *“the principle of interdisciplinarity, the principle of a holistic approach and the principle of cooperation in counselling relationships”* ([Programske smernice ..., 2008a, p. 18](#)). Based on the findings, we can assume that in these areas in the future counsellors will face challenges in collaboration with teachers, to which they will be able to respond with good quality solutions only by planning properly their priorities and by (co-)working in partnerships with each other. In line with our theoretical starting points and empirical research, we highlight some important guidelines for establishing and maintaining quality mutual collaboration between teachers and school counsellors:

- striving to create shared values and vision,
- awareness of collective responsibility,
- constant (continuous) clarification of mutual expectations and competences,
- awareness of the need for and importance of teamwork of both groups of educators,
- flexible exploration of appropriate ways of collaboration, ensuring time and organizational conditions,
- enabling support for each other in conducting research on one’s own practice, and developmental tasks and projects,
- ensuring collaboration that is mutually beneficial and for the benefit of students (as well as their parents and the school community),
- developmental orientation and innovation,
- enabling (encouraging, supporting) supervision, monitoring, evaluating and critically reflecting on one’s own work,
- establishing an appropriate collaborative climate and opportunities for the professional development of all.

We believe that the basis for such partnership is the formation of appropriate interpersonal relationships, trust and respect at personal and professional levels (see e.g. [Kelchtermans, 2006](#); [Hord, 1997](#); [Stoll et al., 2006](#)). As a consequence, a community of teachers and other educators is established and the strength of the professional community is activated – the professional community as a learning community in which individuals make progress through collaboration with others, through shared experiences and knowledge and with the aim of achieving excellence (see [Kalin, 2019](#)). [Stoll and Kools \(2016\)](#) underline that in order to form a learning community it is necessary to provide the four T’s: trust, time, technology and thinking together. Constant and critical reflection ensures quality work and progress for both individuals and the entire community ([Šarić, 2013](#); [Šarić and Šteh, 2017, 2019](#)). The basic starting point for the implementation of these guidelines is the acceptance and anticipation of change and willingness to learn, work and create together.

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Conflict of interests

The authors declare no conflict of interest.

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Metacognitive Awareness and Academic Self-Regulation of HEI Students

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Abstract: The presented manuscript has analysed the theoretical aspects of the concepts of metacognitive awareness and academic self-regulation of HEI students. A theoretical essence of the mentioned above phenomena has been theoretically studied. The role and importance of metacognitive awareness and its components for the learning efficiency and academic self-regulation of HEI students have been described. It has been determined that such a metacognitive characteristic of personality as metacognitive awareness determines not only the organization of mental and behavioral processes, but also relates to the academic success of the subject of learning activity - student. The results of empirical research with the use of Questionnaire "Academic Self-Regulation" by R. Ryan & D. Connell, Questionnaire "Metacognitive Awareness Inventory" by D. Everson & S. Tobias, G. Schraw & R. Dennison's questionnaire "Metacognitive awareness", and correlation analysis with the use of the Pearson's and Spearman's rank correlation coefficients, have proved that students with a high level of metacognitive awareness (involvement in activities) have high performance on the basis of identified and internal self-regulated learning activities. The students of this type are more autonomous in conducting their self-regulated learning activities, developing their metacognitive abilities, such as metacognitive knowledge, metacognitive monitoring, metamemory and meta-thinking. Summarizing the results of theoretical analysis and the empirical data evaluation, we can conclude that the learning behavior of modern student youth has been dominated by dependent types of self-regulation.

Keywords: metacognitive awareness; academic self-regulation; learning efficiency; HEI students.

Introduction

Reformation of the current national system of higher education, daily increase of received information and necessity of use larger amount of it every day have caused the emerge of negative personal indicators in functional and cognitive spheres of a personality. Stressogenic situations require acquisition of new knowledge and competencies by students, developing new approaches to solutions of the problems connected with them. Introduction of the European educational standards require comprehensive approach to the issues of studying cognitive and metacognitive student's abilities, their metacognitive awareness during learning process, correlation and interdependence between their metacognitive abilities and academic motivation and efficiency.

The issue of the study of metacognitive abilities of the individual is extremely relevant due to the insufficient level of generalization and development of methods for diagnosing the metacognitive sphere of the individual. This issue is especially relevant in the context of studying the intellectual activity of students in the context of their academic success. Assimilation of educational material, performance of educational tasks, achievement of success in educational process demands activation not only of cognitive processes of students, but also their metacognitive abilities which allows analyzing a course of educational activity, cognitive methods and strategies, and, if necessary, correcting them. Students are the subjects of their own learning activities, and they need to learn to function effectively and fully in the educational and socio-cultural environment. An important factor influencing success is the students' learning motivation, which plays a significant role in their learning activities. Given that students' metacognitive abilities and learning motivation largely determine learning efficiency and success, we find it significantly relevant and appropriate to study the relationship between students' metacognitive awareness and their academic performance.

A large number of scientists have carried out the study of motivation. Metacognitivism is a relatively

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new direction in psychological science, and researching this sphere is very relevant at this stage of its development (Flavell, 1976). Metacognitive abilities of personality and educational motivation have been studied by such scientists as Andrade and Heritage (2017), Bandura (1997), Brown, Andrade and Chen (2015), Dweck (1999), Ryan and Deci (2001), Karpov (2012), Flavell (1976; 1987), Schraw and Moshman (1995), Schraw, Crippen and Hartley (2006), and many others. Poshekhonova and Karpov (2014), Balashov et al. (2020) have proved its correlation with learning motivation and personal metacognitive abilities.

Among the modern Ukrainian scientists studying the issue of academic success and motivation of educational activities, we can distinguish the works of Zasekina (2015) - psychological determinants of students' academic success, Khomulenko and Dotsevych (2014) - metacognitive processes of personality, Savchenko (2016) - reflexive competence in the educational process, Pasichnyk and Maksymenko (2010) - metacognitive activity of students and metathinking, Radchuk (2015) - self-actualization and self-realization of students in educational activity, Pasichnyk, Kalamazh and Augustyuk (2014), Voloshyna (2014), Balashov (2017) and Tkachuk (2018) - metacognitive processes in learning, Yalanska (2018) - independent work of students in the context of learning motivation), Kreidun, Polivanova and Yavorovska (2018) - satisfaction with studying in ZVO as a factor of professional self-efficacy of students and many others.

Dweck, who identified two types of implicit theories of intellect, studied it in the context of metacognitivism. The essence of the first type was that intellect is a constant little-variable feature, and in the second one, intellect was considered as a personal feature that could be developed (Dweck, 1999). One of the most important concepts of metacognitive abilities in psychology is the concept of intelligence Kholodnaya (2019). In particular, she has identified the metacognitive experience of a person as the basis for the regulation of effects in the work of intelligence. This has included four types of mental structures that carry out self-regulation of intellectual activity: involuntary intellectual control, which provides cognitive styles; arbitrary intellectual control, i.e. abilities aimed at setting goals, determining ways to achieve them and the sequence of actions and controlling results; metacognitive awareness, i.e. the level and type of introspective human ideas about their individual intellectual capabilities; and open cognitive position, i.e. variability of subjective ways of perception (Kholodnaya, 2019).

Motivation of students' learning activity consists of a set of factors that determine the self-regulation of this activity. We share the level approach to determining the factors of motivation of the individual, which has been set out in the theory of self-determination (autonomy) by Ryan and Deci (2001). The authors have defined such levels of motivation as extrinsic or external, when behavior and activities are determined by rewards and punishments; introjected with behavior determined by partially mastered rules and requirements; identified when behavior is determined by a sense of personal choice of the specified activity, previously regulated from the outside; intrinsic or internal with interest in the activity. Students' academic success is determined, according to this theory, by intrinsic motivation, which has been based on the need for competence (choosing the optimal difficulty of tasks, the presence of positive feedback) and self-determination (autonomy, internality of personality) (Ryan and Deci, 2001).

Diagnostics of metacognitive awareness

The urgent problems of the modern system of higher education are determination the level of metacognitive awareness of students and studying the possibility of direct inclusion of metacognitive knowledge in the process of their cognitive activity. In modern psychological science, there has emerged a completely new glossary of concepts such as "metacognition", "metathinking", "metacognitive experience", "metacognitive monitoring" and so on. The use of these cognitive processes in learning has set the new requirements and standards for students and teachers, as well as for the educational process in general. Within the new paradigm of education, it has been assumed that the teachers in their work should use new educational, technological, methodological and didactic approaches aimed at creative developing the individual personal characteristics of students and encouraging them to develop efficient metacognitive awareness and involvement in learning activities.

Modern higher education has been designed to ensure equal access to the best educational resources and practices for all participants of the educational process, and ensure the formation of an intelligent, competent and competitive professional at the labor market. In order to prepare a student to function in such conditions, academic knowledge, functional skills, personal and communicative-organizational competencies are not enough. It is necessary to develop their completely new personal characteristics, such as metacognition and metacompetence.

Studying the phenomenon of metacognitive awareness of students is a prospective scientific

direction in the field of educational psychology, because the success of awareness plays an important role in all areas of intellectual activity of students, and allows the students to carry out cognitive activities effectively while studying at HEI. It is worth remembering that the student is a subject of educational activity and must consciously regulate this activity through the conscious use of cognitive abilities. It is understood that the student's own conscious activity ensures success in educational activities.

Recently, along with the extremely rapid information technology development of society, the importance of self-realization of the individual in learning, their ability to acquire new information effectively and consciously, analyze and update it through the prism of individual and personal qualities, has increased significantly. That is why there is an urgent need to determine scientifically the psychological features of metacognitive awareness of students and their place in the structure of metacognitive activity. The relevance of the proposed topic has also been determined by the point of view that this activity can be developed during the life of the individual, and thus, increase the efficiency of the individual's entire learning process.

The study of the concepts of metacognition and metacognitive activity has been a relatively new area of psychological science and has combined the study of several areas. Study of metacognitivism began in the works of J. Flavell in the 70s of the past century. The scientist defined metacognition as a set of human knowledge about the features of their own cognitive activity and ways to control it. He identified three main stages of metacognitive processes that developed mainly through the search for information, its actualization and systematization (Flavell, 1976). Metacognitive abilities of the individual and their connection with academic success have been studied by such scientists as [Andrade and Heritage \(2017\)](#), [Pintrich and Zuszo \(2002\)](#), [Schraw and Dennison \(1994\)](#), [Shunk and Greene \(2018\)](#) and others.

In the works of psychologists, the concept of metacognition is usually defined by describing its structure. M. Kholodnaya in her theory of intelligence identified two of its main components: metacognitive knowledge (knowledge of cognition) and metacognitive processes (monitoring and evaluation, control and regulation of cognition) (Kholodnaya, 2019). [Schraw and Moshman \(1995\)](#) identified the main directions of formation of metacognition in the educational activities of students, namely: encouraging students to understand the importance of the development of metacognition; improving knowledge about cognition; improving the regulation of cognition; creating conditions that stimulate students' metacognitive activity. Scientists claimed that the ability to self-regulate own learning activities increases the productivity of cognitive activity, as well as the causes of their own failures in this activity ([Schraw and Moshman, 1995](#)). Many authors have considered metacognition as the necessary and effective tool for the formation of students' metacognitive knowledge in the learning process. American psychologists [Pintrich and Schunk \(2002\)](#) believed that metacognitive knowledge should be included to the learning process and taught for the students as an important part of their learning at HEI.

The generalized characteristics of the components of the structure of a personality's metacognitive knowledge have been presented at Table 1 ([Babikova et al., 2018](#)). Obviously, metacognitive knowledge consists of such components as general knowledge about knowledge, knowledge about one's own learning, knowledge about cognitive tasks. Instead, metacognitive processes consist of evaluation and monitoring, as well as control and regulation.

Table1
Structure of Personal Metaknowledge

Metacognitive knowledge	Components
General knowledge about knowledge	<ul style="list-style-type: none"> - declarative knowledge about cognitive strategies, methods and techniques of memorizing, understanding, solving problems etc.; - procedural knowledge as to how to use cognitive strategies; - conditional knowledge, how and when to use certain strategies.
Knowledge about cognitive tasks	<ul style="list-style-type: none"> - awareness of the complication levels of various learning tasks; - awareness about relevance of certain cognitive strategies to various learning tasks; - awareness of the use of learning technologies depending on the situation and main social and cultural norms and traditions.
Knowledge about own learning	<ul style="list-style-type: none"> - awareness of strengths and weaknesses, peculiarities of own learning; - awareness of own motivation знання про власну мотивацію.
Metacognitive processes	Components
Evaluation and monitoring	<ul style="list-style-type: none"> - evaluation of the level of complication of the cognitive task execution; - monitoring of understanding in the process of learning; - feeling "knowledge", understanding the situation when "I know", but "I can't remember"; - judgments of correctness of the answer or its relevance to the questions.
Control and regulation	<ul style="list-style-type: none"> - planning of activities; - making a decision about the choice of a strategy for solving a concrete task or changing the strategy during execution of the tasks; - division of resources, time, efforts; - control and regulation of motivation, emotions.

In our work, we have assumed that such a metacognitive characteristic of personality as metacognitive awareness determines not only the organization of mental and behavioral processes, but also relates to the academic success of the subject of learning activity - student. Despite the large number of studies of the psychology of metacognitive processes conducted in the last decade by domestic and foreign scientists, they do not cover all the potential problems of metacognition, so special attention needs to be paid to studying the links between the components of student metacognitive activity and metacognitive awareness (Karpov, 2012).

The most important modern task of higher education is the formation of students' ability to organize their cognitive activity independently, use their own cognitive abilities and strategies skillfully, analyze the course of educational activities, adjust and correct them if needed. The peculiarities and structure of metacognitive abilities of a person, metacognitive awareness and its connection with educational motivation and self-regulated learning of students have been studied insufficiently, which necessitates a deeper study of these phenomena and their relationships in student learning activities.

Materials and Methods

The empirical study we conducted was to diagnose correlation between the metacognitive awareness and academic self-regulation of the subjects of learning activity – HEI students. The study was conducted at the National University of Ostroh Academy, and empirical data was collected during January-March, 2021. The sample was formed by a spontaneous method from the full-time students of all years of study. Thus, 76 respondents (14 males and 62 females) regardless of major, aged from 17 to 22 years ($M = 19,88$, $SD = 1,664$) participated in the study.

To complete the empirical research, we have used the following methods.

1. Questionnaire "Academic Self-Regulation" by Ryan and Connell (1989), which contained of 32 statements aimed at evaluating the level of development of external regulation (extrinsic or external motivation of educational activities), introjected regulation, identified regulation and internal motivation (intrinsic or internal motivation) (Yatsiuk, 2008).

2. Questionnaire "Metacognitive Awareness Inventory" by S. Tobias & D. Everson, and particularly – one of its scales – metacognitive awareness. The methodology has been designed for evaluating the level

of formation of metacognitive behavior in general, and using the mentioned scale allowed to determine the student metacognitive involvement in the activity. The questionnaire aimed at studying the four blocks of metacognitive qualities of personality, namely: metacognitive involvement in activities, use of strategies, action planning, self-examination. The questionnaire contains 20 statements that are evaluated on a standard Likert scale (Tobias and Everson, 1997).

3. Analysis of empirical indicators of metacognitive awareness has been conducted with the use of G. Schraw & R. Dennison's questionnaire "Metacognitive awareness". It included 52 questions, which allowed to measure two components of metacognition: metacognitive knowledge and metacognitive processes, which diagnosed the level of metacognitive awareness of students. We chose this methodological diagnosis because the use of this questionnaire was quite simple and convenient (17 questions belonged to the category of metacognitive knowledge (procedural, declarative and conditional), 35 questions - to the category of metacognitive processes (information management strategies, debugging strategies, planning, monitoring understanding, evaluation)). This questionnaire is well known and widely used by psychologists, easily allows you to diagnose the level of these two components of metacognitive activity. The scale for each answer was rated from 0 (strongly disagree) to 5 (strongly agree) points (Karpov and Skityayeva, 2002).

To process the quantitative and qualitative data we obtained after psychodiagnostics, we used the methods of mathematical statistics: finding averages, Pearson's correlation coefficient and Spearman's correlation coefficient. All data of this experiment were processed using SPSS, where the results were lower than the level of 0.5. Correlation is a statistical indicator that allows determining and evaluating the probabilistic relations between two variables. It should be noted that the peculiarity of the probabilistic relation is that one value of a certain variable corresponds to a number of values of another variable. The presence of a positive direct correlation indicated that the increase of indicator of one value cause the increase of such indicator of another one. The accuracy and validity of the research conducted was ensured by representativeness of the sample, the use of the methods relevant to the topic, aim and tasks of the study, the use of quantitative and qualitative analysis of the received empirical data by using the following methods of mathematical statistics. We have set a hypothesis that there is a positive correlation between the metacognitive awareness of HEI students and their academic self-regulated learning.

Results

The average indicators of motives of the student motivation for learning self-regulation according to the results of the Questionnaire "Academic Self-Regulation" by R. Ryan & D. Connell have been presented in the table 2. It is easy to see that students have an average level of academic self-regulation according to the scales of external regulation, introjected regulation and internal motivation. This indicator differs only for the scale of identified regulation, where high level of identified regulation prevails, which indicates that university education is not just a formality or a compulsory necessity for them, and that in the student age of modern youth behavior is largely determined by a sense of the own desires and wills, as well as own conscious choice. Young people with a high identified level of self-regulation are guided in the regulation of educational activities by learned patterns of behavior. They are sensitive to positive assessments from reference persons, authorities, shows initiative and self-confidence in performing activities.

Table 2

Indicators of motives of student self-regulated learning activity (according to the Questionnaire "Academic Self-Regulation" by R. Ryan & D. Connell)

Level	Low, %	Average, %	High, %
Indicator of academic self-regulation			
External regulation	2,5	57,5	40,0
Introjected regulation	5,0	65,0	30,0
Identified regulation	2,5	32,5	65,0
Internal motivation	5,0	55,0	40,0

The relatively low rate of high level of external student self-regulation has confirmed the previous conclusions and indicated a relatively active subjective position of students in relation to their own learning activities. High indicators of average and high level of self-regulation have confirmed the idea that students have mostly inflated demands on themselves, guided in their educational activities mainly by introjected norms and guidelines. High level of introjected regulation is present among such students who have well mastered the norms and requirements of the socio-cultural environment, i.e., for whom higher education is the norm, the presence of a profession is a necessity and so on. Quite a significant indicator of medium and high level of intrinsic or autonomous (internal) self-regulation in students has showed that they have their own motivation to learn, i.e., characterizes these students as proactive, responsible, active, self-organized, creative in solving educational problems.

The next step was to evaluate the level and features of metacognitive involvement in the activity of students. First of all, we analyzed the obtained empirical data with the use of Metacognitive Awareness Inventory – MAI (by D. Everson & S. Tobias). According to the results presented at the figure 1, the average sample value was $M = 31.4$.

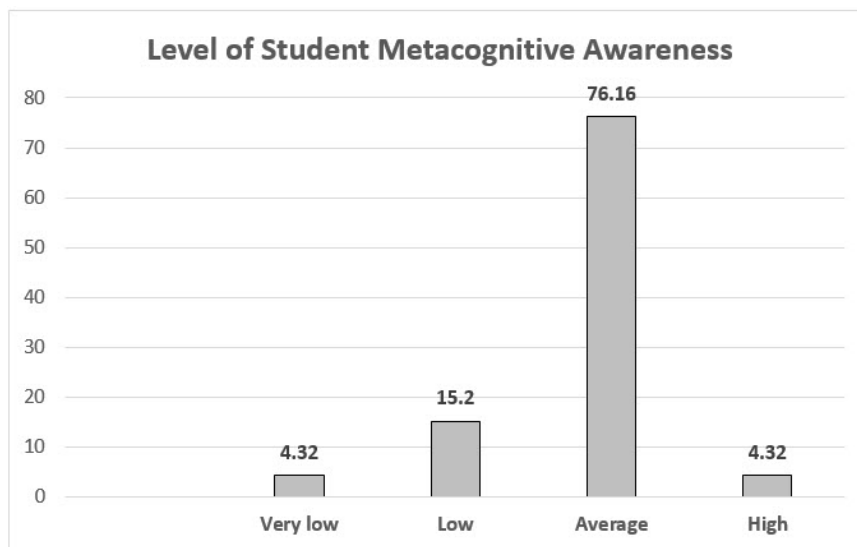


Figure 1. Levels of Student Metacognitive Awareness according to the results of “Metacognitive Awareness Inventory – MAI” (by D. Everson & S. Tobias), %

It can be concluded that the respondents have showed the average level of metacognitive awareness (involvement in activities). The analysis also shows that 4.32% of respondents have a low and high level of metacognitive involvement in activities, 15.2% - an average level, and the largest share (76.16%) of respondents have an average level of metacognitive involvement in activities.

It is easy to see that the average level of metacognitive awareness (involvement in activities) has prevailed among students (above 78 % of all sample). These students can be characterized as the ones usually having a high level of executive discipline, exemplary and diligent training, easy to work with reputable teachers. At the same time, they try to avoid depleting their own resources during the learning process, trying to find the most effective solution to the problem.

Students with a high level of metacognitive awareness can be described as original, flexible and creative, usually trying to make free choices in their studies. They have their own point of view on every controversial issue, do not pay too much attention to the problems that harm their learning. Such students usually have well-developed metacognitive abilities and metacognitive inclusion to learning activities. Our study has showed very a small number of such students (only 4.32% of respondents).

Also, a very small part of students has a low level of metacognitive awareness (4.32%). This can be explained, from our point of view, by to the sensitivity of the student age, when they consider themselves to be the subjects of their own cognitive and intellectual activities, which consciously helps them to intensify educational activities. However, it can be noted that such students are mostly passive in the learning process, do not really strive for high results and care about the learning efficiency. Their activities are largely determined by the circumstances caused in surrounding socio-cultural environment, and they find it difficult to focus on one kind of learning activity.

The division of respondents into four groups according to the levels of metacognitive awareness

has showed that almost 20% of students have very low and low levels of metacognitive awareness, and average and high levels are characterized for among above 80 % of all respondents (Table 3). The highest indicator of the efficiency has been determined for the average level of metacognitive awareness (84,9 points), as well as for the indicator of MAI (76,2%).

Table 3
Levels of students' metacognitive awareness

Level of metacognitive awareness	Range		Average indicator of metacognitive awareness		Average indicator of efficiency		Indicator of MAI	
	Points	%	Points	%	Points	%	Points	%
Very low	0-13	0-25	4,4	2,10	61,2	8,40	38,5	68,0
Low	14-26	26-50	16,9	16,80	80,1	21,00	34,5	71,0
Average	27-39	51-75	35,4	79,00	84,9	66,40	39,9	76,2
High	40-52	76-100	45,4	2,10	80,2	4,20	35,9	69,4
TOTAL			-	-	76,6	65,10	37,2	70,7

According to the received empirical data, the average rate of the indicator of metacognitive awareness was 37.1 points out of 52, which is 70.7%. More than 80% of respondents have showed the rate higher than average. As we can see, our results have coincided with the work of scientists who consider the average level of metacognitive involvement of students to be the most optimal. Also, some researchers have claimed that an excessively high level causes a high level of metacognitive abilities in combination with a low level of subject knowledge, which can absolutely lead to an overestimation of the student own knowledge and excessive self-confidence of students in efficiency of learning activities. Low or very low level of metacognitive awareness can lead the underestimation of the person's cognitive abilities, which would surely cause low efficiency of their learning activity (Karpov and Skityayeva, 2002).

Our next task was to interpret the results we obtained as a result of using the questionnaire "Metacognitive Awareness Inventory" by D. Everson & S. Tobias. In particular, we have taken into account the results of only one of the four scales - the scale "Metacognitive involvement in activities". After processing the received empirical data, we have found out that the average value on this scale in the sample was $M = 9.68$.

On the next stage we have evaluated the indicators of metacognitive awareness with the use of G. Schraw & R. Dennison's questionnaire "Metacognitive awareness". The method has also helped us to determine the level of student metacognitive monitoring skills, generalized in accordance with the cognitive processes in their learning activities. This questionnaire has included questions that determine knowledge about the regulation of cognitive activity of students in the process of self-regulated learning. The empirical data of the levels of metacognitive awareness of students in learning activities has been presented at figure 2.

It is obvious that a high level of student metacognitive awareness (metacognitive inclusion to the activities) has significantly prevailed in their learning activities. Empirical data has supported our conclusions that this age is sensitive in the development of student youth who learn to analyze their cognitive activity consciously and use self-regulation in their learning. Students at this age begin seeing themselves as the subjects of their own cognitive activity, and this consciousness allows them to intensify their learning activities.

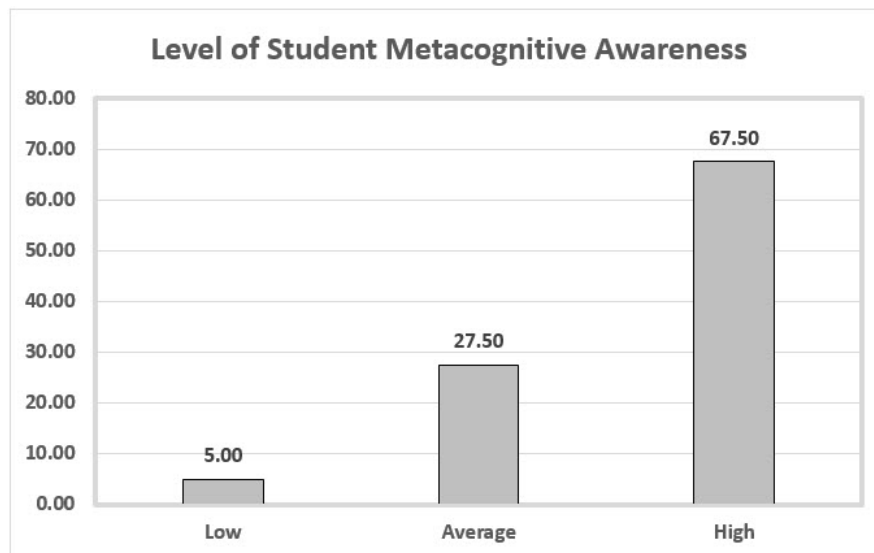


Figure 2. Levels of student metacognitive awareness according to the G. Schraw & R. Dennison's questionnaire "Metacognitive awareness", %

The next stage stage of the empirical study was conducted for determination of the correlations between the levels of metacognitive awareness (involvement in activities) of students and indicators of motivation of their educational self-regulation (Table 4). The correlations have been determined with the use of correlation analysis of the obtained data, the nature of the distribution of which allowed the application of the Pearson's linear correlation coefficient. As a result, the intensity of correlations between the levels of metacognitive awareness (involvement in activities) and the levels of motivation of self-regulated learning activities of students have been found out. It is obvious that a high level of metacognitive awareness (involvement) of students has a strong connection with internal (autonomous) motivation (0,916) and identified self-regulation (0,890). The average level of metacognitive awareness correlates with identified self-regulation (0,904) and, to a lesser extent, with introjected self-regulation (0,856). Correlation analysis has also demonstrated a close correlation between the external self-regulation of students' learning behavior and the low level of their metacognitive awareness (involvement in activities) (0,804).

Table 4

Indicators of correlation between metacognitive awareness and academic self-regulation of students

Level of Metacognitive Awareness	Level of Academic Self-Regulation			
	External	Introjected	Identified	Internal (autonomous)
High	-	-	0,890*	0,916**
Average	-	0,856**	0,904**	-
Low	0,804*	0,816**	-	-

* $p \leq 0,01$, ** $p \leq 0,05$

The data in Table 5 has confirmed that the students with a low level of metacognitive awareness have had a high level of external regulation (2,5%), an average level of introjected regulation (5,0%), an average level of identified regulation (2,5%) and a low level of intrinsic motivation (5,0%). Such students are characterized by a mostly passive subjective attitude to their own learning activities. In general, in the organization of such activity, they rely on others, while having a low level of awareness of their own responsibility for the success of the results. They, as usual, do not strive for high results and awards. Most likely, students with a low level of metacognitive awareness would try to avoid aggravation of the conflict situation and punishment. It is difficult for such students to concentrate on any one type of activity, and priorities in their learning activities are mostly set depending on the circumstances of the surrounding learning environment.

Table 5
Indicators of correlation between the levels of metacognitive awareness and motivation of self-regulated learning of students, %

Indicator of academic self-regulation	External regulation			Introjected regulation			Identified regulation			Internal motivation		
	L	A	H	L	A	H	L	A	H	L	A	H
Meta-cognitive awareness												
Low	0	0	2,5	0	5,0	0	0	2,5	0	0	5,0	0
Average	5,0	42,5	5,0	5,0	52,5	7,5	2,5	27,5	5,0	10,0	30,0	15,0
High	7,5	27,5	10,0	2,5	22,5	5,0	12,5	22,5	27,5	2,5	20,0	17,5

Students with an average level of metacognitive awareness (involvement in the activity) have an average level of external regulation (42,5%), an average level of introjected regulation (52,5%), an average level of identified regulation (27,5%) and an average level of internal motivation (30,0%). This category of students usually follows the rules and requirements of the educational environment and institution. They are accustomed to set an example in learning, diligently perform all learning tasks of teachers. For this group of students, the authoritative opinion of teachers is very important, and that is why they easily find common ground with teachers. They are quite versatile in their activities, as they are quite successful in learning and extracurricular activities. Students with an average level of metacognitive awareness try to use their internal resources effectively, but not excessively, because, having found the right solution to the problem, in the vast majority of cases they will consider this option sufficient.

Our last task has included execution of correlation analysis with the use of the Pearson and Spearman's correlation coefficients. The average direct correlation $r = 0.337^*$, at a statistically significant level $p = 0.05$ (according to the Pearson's coefficient) has been found between the indicators of metacognitive inclusion (according to the questionnaire "Metacognitive Awareness Inventory" by D. Everson & S. Tobias) and the scale of metacognitive processes (the questionnaire of MAI G. Schraw and R. Dennison). Spearman's correlation coefficient between these indicators was $r = 0.321$. That is, we have concluded that the higher the level of metacognitive awareness (involvement in the activities) of students, the higher the level of activity of their metacognitive processes in learning activities and vice versa.

Our empirical research has showed that a group of students with an average level of metacognitive awareness (involvement in activities) (according to the method of metacognitive involvement in activities "Metacognitive Awareness Inventory – MAI") has significantly prevailed among students. Respondents showed a higher-than-average level, and about 20% of respondents had a low level, which has allowed us to state the activity of the vast majority of students in conscious learning, activity in the meaningfulness and awareness of their own cognitive activity.

Discussion

Metacognitive awareness (involvement in activities) of students is one of the important components of metacognitive monitoring of students' self-regulated learning activities. It allows students to track their own intellectual and cognitive activities, select and use the right metacognitive strategies in learning, analyze and evaluate results. An urgent task for modern psychological science is the need to develop methodological tools for the study of metacognitive components that increase the effectiveness of students' learning activities.

One of the actual scientific problems in the framework of metacognitive orientation in recent years has been the study of the role of metacognitive processes in learning. Nowadays, the vast majority of the scientific studies are carried out in the framework of applied disciplines, such as age and educational psychology, psycholinguistics, labor psychology, management psychology, developmental psychology, and so on. This has given the impetus to the development of psychodiagnostic tools that can quantify the ability of the subject of educational activities to metacognition (Karpov, 2012). In modern research on the problem of improving the performance of various activities (including student activities), many scientists have turned to studying the possibility of subjective use of metacognitive experience of the individual, such as metacognitive knowledge, experiences, strategies, experiences, skills (Balashov, 2019). The works of the psychologists in the field of metacognition in the learning process have showed a positive

correlation between academic achievement and metacognitive awareness of students. When choosing metacognitive knowledge and skills, the formation of which should be included in the teaching process, it is necessary to take into account the current level of metacognitive involvement in the activities of students in the educational process (Pasicichnyk et al., 2014).

In the light of the results of our theoretical analysis and empirical research, with the help of statistical analysis, we have confirmed the hypothesis that there is a positive connection between the metacognitive awareness of students in their learning activities and their self-regulated learning. Empirical data from our study has showed that students with a high level of metacognitive awareness have an average level of external regulation, an average level of introjected regulation, a high level of identified regulation and an average level of internal motivation. Their behavior is mainly governed by a sense of choice; they have a high level of flexibility and creativity. Students in this group have an average level of identified regulation, and they try to regulate their learning behavior of their choice. Most often in their activities, they respect the rules and regulations, but they take into account the opinions of others in the context of their views. When performing tasks, they mainly consider various options for its implementation, using flexible and original approaches. They are mainly interested in educational activities, not paying attention to destructive factors. Most often, after a reasoned discussion, such students remain in their thoughts. Students of this type develop their metacognitive abilities, such as metacognitive knowledge, metacognitive monitoring, metamemory and metathinking. These results are consistent with some psychological studies about metacognitive involvement and monitoring, learning motivation (Flavell, 1976; Karpov, 2012; Balashov et al., 2020; Pasicichnyk et al., 2014; Pintrich and Schunk, 2002; Schunk and Greene, 2018; Pasicichnyk and Maksymenko, 2010).

Metacognitive awareness can help mobilize the operational and behavioral resources of the individual for fostering self-regulation in learning, through which the intellectual activity the efficiency of learning activities is enhanced. The results of our empirical evaluation have proved that students with a high level of metacognitive awareness (involvement in activities) have high performance based on identified and internal self-regulated learning activities. The students of this type are more autonomous in conducting their self-regulated learning activities, developing their metacognitive abilities, such as metacognitive knowledge, metacognitive monitoring, metamemory and metathinking.

Today, many of the scientists have focused at exploring the different factors determining the quality of metacognitive monitoring in self-regulated learning (Balashov et al., 2020; Karpov, 2012; Radchuk, 2015; Voloshyna, 2014). It has been distinguished that the students have developed reflexive skills at the metacognitive level, such as problem solution, appropriate efforts direction for the goals accomplishment, analysis of the own abilities to plan, execute, analyse and correct the own learning activities (Schraw and Dennison, 1994). Our study has proved that metacognitive awareness (inclusion to activities) has been confirmed to be closely interconnected with the components of academic learning motivation and self-regulation of students, supporting the previous statements of Schraw, Crippen and Hartley (2006), Schunk and Greene (2018), Khomulenko and Dotsevych (2014), Savchenko (2016), Tkachuk (2018).

The theoretical analysis and empirical data of our study have supported a conclusion that the definition and analysis of metacognitive awareness of students can be an effective tool for teachers who take into account the individual characteristics of students and properly build their activities to improve their metacognitive knowledge and skills. This is especially important in relation to students as subjects of their own cognitive activity. Such conclusions support the previous studies of Kreidun, Polivanova and Yavorovska (2018), Pintrich and Zuszo (2002), Schraw, Crippen and Hartley (2006), who emphasized the importance of metacognitive awareness in success of self-regulation of student learning process, and considered self-regulated learning at a higher educational institution as a factor of their academic motivation and professional self-efficacy of students.

Conclusions

Our empirical research has shown that the sample of students is dominated by a group with a high level of metacognitive awareness with an identified level of self-regulation of their learning activities. Correlation analysis with the use of the Pearson's correlation coefficient has proved that a high level of metacognitive awareness of students has a strong connection with internal (autonomous) motivation and identified self-regulation; the average level correlates with the identified self-regulation, and a little less - with the introjected; strong link between external self-regulation of students' learning behavior and low level of their metacognitive awareness (involvement in activities).

By comparing empirical data on the number of students with different levels of metacognitive

awareness and different motives for self-regulatory learning, we have identified three groups of students: 1) students with low metacognitive awareness, who have a high level of external regulation, medium level of introjected regulation and low level of internal motivation; 2) students with an average level of metacognitive awareness, who have an average level of external regulation, an average level of introjected regulation, an average level of identified regulation and an average level of internal motivation; 3) students with a high level of metacognitive awareness, who have an average level of external regulation, an average level of introjected regulation, a high level of identified regulation and an average level of internal motivation.

Summarizing the results of theoretical analysis and the empirical data evaluation, we can conclude that the learning behavior of modern student youth has been dominated by dependent types of self-regulation. Students with external self-regulation of behavior are mainly characterized by a passive subjective position on their own learning activities. Introjected self-regulation of students determines their learning behavior based on the instructions of authoritative persons and increases the emotional dependence of students on such instructions. Students with predominant identified self-regulation are proactive, confident, independent who model their own patterns of behavior. Autonomous (internal) type promotes the development of metacognitive abilities of students, their creativity and self-organization, active subjective attitude to learning.

The results of the study have allowed to consider it possible in individual work with students to use questionnaires of metacognitive inclusion in activities (Metacognitive Awareness Inventory - MAI, authors G. Schraw and R. Dennison), as well as the Questionnaire "Metacognitive Awareness Inventory" by D. Everson & S. Tobias. These techniques allow to identify students with very low and low levels of metacognitive awareness, to determine which metacognitive processes, important for the level of success, they do not use, but can potentially use. Also, the empirical data obtained by these two methods can increase the effectiveness of the use of relevant materials in the educational process based on the results of generalization of metacognitive elements that students use most often.

Determining the right balance of personal and motivational factors that are crucial for successful learning activities and determine the learning motivation of modern students is one of the most crucial and actual issues of modern higher education. Theoretical analysis of sources has shown that it is especially important for teachers to determine the relationship between metacognitive awareness (or involvement to learning activities) of students and their academic performance, which will develop metacognitive components that increase such academic performance.

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Conflict of interests

The authors declare no conflict of interest.

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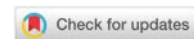
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Attractive Spheres of Students' Self-realization as Practices for Supporting Their Psychological Well-being in University Education

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Abstract: The study is aimed at finding the varieties of appealing spheres for realization of students' potential in higher school. The authors substantiate and develop the concept of attractors for students' self-realization, which designate the appealing spheres and forms of manifestation of students' personal efforts and capacities in higher education. The methods of conceptual-applied reconstruction and psychological surveys are used to determine the attractive space for students' self-development. The study identifies a group of potentially attractive spheres (learning-cognitive, research, sports-wellness, volunteer, artistic-creative, innovative-entrepreneurial, information-media, social-civic, sphere of cross-cultural communication). The study presents the results of diagnosing the subjective significance of these spheres for students of different specialties and different levels of self-realization in education. The conclusion is made about the tendency of influence of students' involvement in attractive spheres on the success of their self-realization in educational environment. The prospects of applying and operating the category of attractors as socio-cultural predictors of successful self-realization and psychological well-being of students in the process of University training are shown.

Keywords: students, attractors of self-realization, psychological well-being, spheres of University activity.

Introduction

Personality development is inextricably bound up with the process of education. It is in the field of training and education that the foundations of mental system and inner world of the future generations are laid. Higher school plays an essential role in this formation. It introduces a young person to the professional world, shows the heights of scientific cognition, experience of culture of thinking and understanding the reality and forms comprehension of the world and his predestination in it (Barnett, 2005; Ilyinsky, 2002). In the ontogenetic dimension people get higher education at the young age, in which the most important structures of the personality and personal self-consciousness are formed, as well as value orientations, beliefs, life principles, ideals, etc. (Robins et al., 2001; Brock, 2010; Donnellan, Conger and Burzette, 2007). The stability and healthy development of the personality depend largely on the stable and effective work of higher education institutions (Murray, 2011; Barnett, 2010). It is not a coincidence that the current crisis of higher education has exacerbated the crisis in the youth community, which is losing its value stability, cultural identity, ability to creative activity, etc. (Brenner, 2019; Zhuravlev, Volovikova and Galkina, 2014).

At the present stage higher school, as an institution of socialization, needs to be strengthened

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and improved in terms of opportunities for the full development of the student's personality, introduction of humanitarian standards and methods for measuring the quality of higher education. Today successful University education is supposed to create variety of opportunities for self-realization of students, as well as foster the versatile development of the students as subjects of various forms of activity (Selezneva, 2015).

Healthy development of personality in higher school is increasingly associated with the process, which is aimed at expanding the opportunities for full-fledged development, formation of holistic self-consciousness and constructive behavior (Selezneva, 2015; Li, 2017). In this regard there is a need to build such educational environment that suggests a wide range of opportunities of self-development for the young generation, provides an opportunity for versatile and productive self-realization in the field of educational, scientific, social, cultural, sports and other types of activities (Shutenko, 2013).

It is well-known that the psychological health of the personality is directly associated with self-realization especially in young age (Pufal-Struzik, 1999). In fact, the ability to self-realization is an attribute of psychological well-being, and the possibility of successful self-realization is considered as a source and an indispensable condition for healthy development of personality (Bradburn, 1969). Many recognized studies associate mental health and psychological well-being with the person's self-realization (Deci and Ryan, 2008; Miquelon and Vallerand, 2006; Ryff, 2014). Meanwhile, there is a need to expand and deepen scientific knowledge about self-realization of youth, which is caused by the specific needs of wellness practices, both in medical and humanitarian-psychological terms (Burris, Brechting, and Salsman, 2009; Kudinov et al., 2020).

The phenomenon and process of self-realization have been actively studied by scientists of various branches of humanitarian science for the last half-century. In addition to the works of humanistic psychology (Allport, 1950; Rogers, 1961; Maslow, 1962), the issue of self-realization is developed at three methodological levels – philosophical, sociological and psychological (Leontiev, 1997). We consider the socio-cultural nature and phenomenology of self-realization, which is mediated and caused by the process of socialization that means it occurs and unfolds in response to the formative influence of society and culture (Shutenko, 2013). According to the cultural-historical methodology and activity approach, self-realization acts as a process of disclosure and realization of the essential forces of the personality who is mastering the concrete historical practices of social relations (Vygotsky, 1997; Rubinstein, 2011). Being a fusion of knowledge, skills, abilities, etc., and driven by interests, aspirations, expectations and values, these essential forces are perfected and shaped in the process of individual's assigning the experience of culture and the productive forces of society (Marx, 1968). Thus, self-realization is successful if an individual is involved in a sufficient number of activities and social relations (Batishchev, 1969, p. 100-101).

In this regard the sphere of education is supposed to be built as a space and practice of transfer of culture experience, as well as represent a universal environment for the development of students' essential forces (Ilyinsky, 2002).

Materials and Methods

Theoretical approaches. The present study is based on the methodology of sociocultural determination of personality formation. The fundamental tenets of this methodology substantiate the decisive role of cultural influences and the social situation of development on the becoming of psychological structures of the personality (Vygotsky, 1997).

We developed a research design using the cultural-historical approach, as well as activity-based and synergistic approaches. The first approach considers personality growth as a process of mastering cultural values; according to two other approaches, the person is formed in the process of performing an activity as a self-organizing polymotivated subject (Leontiev, 1997; Rubinstein, 2011; Haken, 1982).

The theoretical background of the study was the provision that self-realization of students is a consequence and result of their fruitful socialization at the university through their development as an authentic actors of a multidirectional activity (intellectual, labor, scientific, educational, sports, artistic, cultural, leisure, etc.) (Gewirth, 1998; Selezneva, 2015). At the psychological level the process of self-realization is triggered by the primary motivation of self-actualization (Maslow, 1962; Rogers, 1961). Being the dominant driving force at the student age, this striving for self-actualization inspires a young person to develop his inner resources and abilities for mastering useful experience in order to recognize and realize himself in educational process, upcoming profession, social practice, culture, etc (Leontiev, 2002).

Research problem, hypothesis and participants. The problem of students' self-realization,

which is being developed in this study, is interpreted as a process and result of the active deployment of their internal abilities and personal potential through the widespread use of higher school educational and socializing opportunities. Considering the attractors of students' self-realization, we sought to answer the question: what can a modern University offer as a real activity basis for the development of the essential forces, abilities and personal potential of students in the learning process? Which of the existing educational forms and methods of socialization of students are interesting and valuable for them in terms of self-realization?

The **hypothesis** of our study was built on the supposition that the presence of a variety of attractive spheres of student life in the University system contributes to a more complete self-realization and psychological well-being. In general, a direct correlation was assumed between the level of students' self-realization at the University and the degree of their involvement and personal immersion in the scope of various attractors of educational environment.

This hypothesis was tested by means of a special survey conducted among the students pursuing humanities and technical courses. 214 secondary and senior students were involved in the study, 106 of them were the students from Belgorod National Research University and Murmansk Arctic State University (psychological and pedagogical specialties), and 108 students were from Belgorod State Technological University.

The logic of building a study. To solve the above problem and research tasks, a study consisting of three stages was carried out.

At the *first stage* a preliminary piloting projective survey took place to identify attractive areas of students' self-realization, on the basis of which a list of the main attractors of self-realization was formulated.

At the *second stage* a diagnostic survey was conducted to assess the current impact of the selected attractors on students' activity during University education process.

At the *third stage* a comparative analysis of the degree of involvement of students, who are at different levels of self-realization in training, in the attractors' orbit was carried out.

Methods. In theoretical dimension the research work used the method of conceptual-applied reconstruction of the attractive space for self-realization of students that was aimed at highlighting and subsequent summarizing of the inspirational potentials of the higher school educational environment.

The diagnostic tools of the study included a number of methods developed by the authors.

1. Method for determining attractive spheres of intra-University activity was used at the first stage of the study. This projective method is a variety of Sentence-Completion Techniques and it is aimed at identifying preferred kinds of students' activity at the University, which, in students' opinion, contribute more to the realization of their personal potential. The test tasks of the method belong to the open type of tasks for completion and provide for unprogrammed answers of the tested people regarding the essence of the task without any proposed ready-made answers. In the process of its resolution and removal of uncertainty such a weakly structured test model contributes to the actualization of personally significant manifestations of students who produce not only an answer to the task, but also the thematic and stylistic-sense construction of this answer. Students perform the task at their own discretion, giving definitions and their attitude to various aspects of University life. They are required to continue assertions based on the proposed initial elements:

"While undergoing training at our University, I would like to study ..."

"Over the years of study at our University, most of all I would like to prove myself in the field ..."

"Of all the present spheres of activity of our University, I am most attracted by such spheres as ..."

This method allows us to obtain unique, non-standard, detailed information about subjectively significant ways and forms of implementing the students' abilities and aspirations in the University environment.

The content-analysis method was used to process the responses, formalize them and quantify the received data. The key recorded category of the analysis was the frequency of reflection of individual topics of University life (study, science, sports, volunteering, etc.). The content-analysis allowed recording certain units of the content of students' answers: linguistic figures of speech, expressive verbalized elements (words, judgments, connotations, etc.), grammatical and stylistic constructions of speech ("thematic" statements, verbs, logical "clusters", etc.) indicating significant spheres of University life. As a result, quantification units were identified – the frequency of the appearance of thematic units in the collected volume of information, and a primary set of 13 "topics" was obtained, these topics reflect the attractive aspects of students' activity at the University.

To clarify the conceptual-sense unambiguity of the selected topics the method of thesaurus analysis was applied (Lukov Val. and Lukov Vl., 2004). This method allows us to identify the conceptual basis,

explanatory schemes and students' understanding of those topics and aspects of their University activity that they consider significant for themselves. In the focus groups discussions of the genre-sense identity of the received topics were organized. The students were asked to articulate the topics they identified, to reveal their understanding of these topics and to explain what meaning they put into this or that aspect of their activity at the University (Shutenko et al., 2016). As a result of the thesaurus analysis of the selected topics, 9 autonomous sense units were obtained, which reflected certain attractive spheres for the realization of students' personal potential in University education. Approbation and standardization of the method was carried out on a sample of 247 people within the framework of research works under the grant of RFBR "Self-realization of student youth as an indicator and a factor of psychological health in conditions of socio-cultural challenges for Russian society" No 18-013-01151, 2018-2020.

2. Method for assessing the subjective significance of spheres of intra-University activity.

This method is a questionnaire with some elements of the evaluation list, it allows you to get information about how important each of the 9 identified spheres of possible realization of personal potential at the University is for students (learning activity, sports-wellness activity, research work, volunteer activity etc.). The questionnaire includes a number of statements with multiple choice, each of which is to be evaluated according to a 10-point scale.

Example:

The questions for survey and answer options	Assessment in points (from 1 to 10)
<i>In process of studying at our University I am attracted first of all by</i>	
1. ... <i>group classes</i>	<input type="text"/>
2. ... <i>research work</i>	<input type="text"/>
3. ... <i>sports-wellness activities</i>	<input type="text"/>
4. ... <i>participation in volunteer work</i>	<input type="text"/>
5. ... <i>participation in artistic-creative and amateur activities</i>	<input type="text"/>
6. ... <i>work in innovative enterprises of the University</i>	<input type="text"/>
7. ... <i>information-media sphere of activity</i>	<input type="text"/>
8. ... <i>social work and participation in University self-government</i>	<input type="text"/>
9. ... <i>international activities of the University</i>	<input type="text"/>

Evaluating the proposed answers, students thereby evaluate each of the possible spheres for self-realization at the University. The results processing consists in calculating the average values of points for each of the 9 spheres of intra-University activity. As a result, a rating of these spheres is compiled in terms of their subjective significance for the self-realization of students at the University. The methodology was tested and standardized on a sample of 235 people as a part of the research work within the above-mentioned project (grant of RFBR No 18-013-01151, 2018-2020).

3. Method for studying self-realization in higher school education. This authors' method was developed as a questionnaire, which is aimed at identifying the students' subjective attitude to University education in terms of the possibilities of revealing and realizing their internal potential, as well as developing themselves as successful and competent subjects (Shutenko A. and Shutenko E., 2008). The questionnaire consists of 49 statements concerning various aspects of students' life while studying at the University (satisfaction with learning, value of learning, relationships with friends, teachers, participation in University life, etc.). Each statement is constructed in the "language of self-consciousness", i.e. it is formulated in the first person and the respondent's task is to agree or disagree with this statement. At the same time, the method provides for the possibility of expressing the degree of consent flexibly, for which the respondent is asked to enter his answer in a five-point scale from full consent (5 points) to absolute disagreement (1 point).

Example (a fragment of the form of the incentive material of the method):

Questions	grades				
	1	2	3	4	5
1. Studying at the University is the most important and meaningful activity in my life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I am considered and consider myself a successful student	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I am interested in studying at our University	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I am happy to attend classes and learn most of the subjects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Studying at our University gives me the opportunity to realize my inner potential	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I would like to be like many of the professors who teach me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Studying at our University helps me to understand myself better, allows me to comprehend my strengths and weaknesses, change myself for the better	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I have a dream, and studying at our University brings me closer to its cherished embodiment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. The process of learning and preparing for classes takes up most of my personal time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. In fact, few people know that I study at our University with great difficulties	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Since the moment I entered the University I have been in a one-on-one situation with my educational problems, when no one helps me at the University	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I am convinced that studying at our University will bring me more benefits than any other occupation...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

As it can be seen, the survey method puts the student in the position of an expert who assesses the University situation for its compliance with his personal aspirations, expectations, values and meanings. All the items of the questionnaire are grouped around three scales reflecting the main factors of students' self-realization in University education, which we studied and verified in a number of special works on this topic (Shutenko, 2013; Shutenko, 2015).

The first scale (17 points) reflects the factor of *personal involvement in the learning process*, which means high motivation for learning, interest in learning, a desire to identify with teachers, a complete dedication to learning as the main and subjectively significant activity in the current period of life.

Examples of direct items-assertions:

- *I have absolutely no idea what I would do if I did not study at the University;*
- *the process of studying at our University captures me completely, serves as a source of inspiration and spiritual uplift.*

Examples of reverse items:

- *if it were possible to start over, then I would most likely choose another University, specialty or get a job;*
- *every day I think more and more often that if I did not have to attend our University tomorrow, I would breathe a sigh of relief.*

The second scale (17 points) represents the factor of implementation of personal abilities, which means the possibility of full and versatile disclosure of strengths and the deployment of the internal potential of the individual.

Examples of direct items-assertions:

- *the learning process contributes to the disclosure of my abilities and talents;*
- *while studying at our University, I take advantage of the opportunity provided to me here to express myself as a person from various sides.*

Examples of reverse items:

- *my efforts in the learning process often remain unnoticed;*
- *during my studies I was never able to fully express myself.*

The third scale (15 points) reflects the factor of social inclusion and acceptance in the University community, which is expressed in the desire to be in a group and take part in the University life, indicates the presence of mutual assistance and mutual support in the student environment, strength of friendly ties, atmosphere of trust, respect and mutual assistance.

Examples of direct items-assertions:

- *I know that I can always turn to my fellow students for help;*
- *I like spending my free time in the company of my University friends.*

Examples of reverse items:

- *for the whole period of training I have always felt lonely;*
- *none of my fellow students is really interesting to me.*

The results are processed according to these three scales considering the key by calculating arithmetic averages in the range from 1 to 5 points. The higher this value is, i.e., the higher the scale indicator, the higher the overall level of self-realization in the learning process will be. The method was tested and standardized on a sample of 436 people as a part of the research work under grant of Russian Foundation for Humanities "Image of students' youth of modern Russia" (No 07-06-02005a, 2006-2009), grant of RFBR "Information technologies of ensuring self-realization of student youth in the course of higher school education" (No. 15-06-08802, 2015-2016) and grant "Self-realization of student youth as an indicator and a factor of psychological health in conditions of socio-cultural challenges for Russian society" (No 18-013-01151, 2018-2020).

The following static procedures were used in the study. In order to obtain test data according to the above methods, the basic procedures of descriptive statistics were used (average values, standard deviation, mode, median, excesses, asymmetry, etc.). In order to represent the differences in the significance of attractive spheres of University activity among students pursuing humanities and technical courses, the comparative ranking method was used. It consisted in comparing two rating lists of these spheres obtained from the samples of students studying various specialties. The students' determination of various categories of self-realization was carried out by the procedure of polar division of the sample into two groups in accordance with low and high indicators on the scales of the Method for studying self-realization in higher school education (Shutenko A. and Shutenko E., 2008).

The analysis of differences in the subjective significance of attractive spheres of University among students with different levels of self-realization in learning was carried out using the Student's t-test. This criterion calculated the differences in the indicators of subjective significance in two samples of students by comparing the arithmetic mean values of these indicators. The fixation of significant differences was carried out only for statistically reliable t-test data from all obtained, i.e. for those that exceeded the critically tabular ones and received a sufficient level of confidence probability on the coefficient «p» (which indicates the number of possible errors). As it is customary to calculate in psychological research, this coefficient should not exceed values of 0.05 ($p \leq 0.005$) (Student, 1908).

Results

The concept of attractors for students' self-realization in University education

To understand the adequacy of the conditions of University training for the students' self-realization task, we consider it appropriate to use such concept like "a self-realization attractor" (from eng. to attract). In the reference literature, the term "attractor" (from Latin *attraho* – I attract to myself) is considered as "... one of the key concepts of synergetics, characterizing the relatively stable structure of an object, which attracts all sorts of trajectories of system elements, directing their movement and evolution in a certain direction. Figuratively speaking, the attractor performs the functions of an autopilot, keeping a complex set of aircraft instruments and controls in certain modes and parameters that do not allow to stray" (Lebedev and Rubashkin, 2010, p. 136).

The attractor in system determination means the potential state of the system to which it evolves. According to Knyazeva and Turobov (2000), the attractor is the final field of the inevitable convergence of the phase trajectories of a complex system motion. A point (a stable focus) or another more complex formation can act as an attractor. A metaphor of the cone of attraction is used in synergetics, "... which, as it were, draws in itself the set of possible trajectories of the system, determined by different initial conditions. The funnel pulls together the disparate initial lines of the trajectories into a common, increasingly narrow

beam. The effect of the attractor is that it carries out a determination, as it were, of the future upcoming state of the system. The state has not been reached yet, it does not exist, but it somehow mysteriously extends the tentacles from the future to the present. In the teleological sense, the look at the attractor can be determined by analogy with the goal, as if it were goal an immanently chosen by the system, to which it aims, deploying its functions and components" (ibid, p. 168).

The concept of "attractor for self-realization" as applied to the objectives of our research means the presence in the University system an attractive (i.e. responding to internal students' motivation and requests) spheres and forms of activities in which they can fully express themselves as a person, gain valuable knowledge and subjectively significant experience of self-development.

Consequently, an appeal to the concept of self-realization attractors allows focusing on identifying attractive areas and forms of promotion of students' personal efforts and potential from the point of view of their all-round self-fulfillment in the University training process.

Potential attractors of students' self-realization in University education

While applying the methods for assessing the subjective significance of areas of intra-University activity at the first stage of the study, their opinions, expectations and orientations regarding the preferred and significant spheres and areas of activity, occupations and forms of activity that are interesting for them in terms of self-realization were revealed.

The stimulus material of the questionnaire consisted of a list of unfinished sentences that students completed in accordance with their own experience of studying at the University:

"While undergoing training at our University, I would like to study ..."

"Over the years of study at our University, most of all I would like to prove myself in the field ..."

"Of all the present spheres of activity of our University, I am most attracted by such spheres as ..."

The received responses were processed using the content-analysis method. This made it possible to determine the set of the most expressive and frequently mentioned topics that point to the subjectively significant areas of students' self-expression in the University. The totality of such topics was subjected to thesaurus analysis (Lukov Val. and Lukov Vl., 2004). As a result of such a double analysis, all topics were combined into several kindred semantic clusters of more definite and unambiguous content. For example, such types of activity as "educational activity" and "cognitive activity" were interpreted by students in related concepts, which allowed them to be combined into one area of "educational and cognitive activity". In the course of clarifying discussions within the framework of focus group work, a list of 9 stable, thematically distinct associations of answers indicating one or another attractive sphere of activity and occupation was formulated. We identified them as attractors of self-realization: learning activity, research activity, sports-wellness activity, volunteer work, artistic-creative activity, entrepreneurial activity, information-media activity, social-civic activity, cross-cultural communications.

We give brief characteristics of the selected attractors below.

1. The attractor of learning-cognitive activity acts as the traditionally dominant factor in the attractiveness of University training in terms of students' self-development and self-realization. The deep knowledge, gaining professional competencies and experience orientation distinguishes educational activity as a leading attractor for students. Meanwhile, the attractiveness of learning has noticeably decreased in the last time. As the students noted, the current University education is not distinguished by a high intellectual level of knowledge, its depth, cognitive orientation, information content, personal interaction, fundamental and professional orientation of training leave much to be desired. In addition, traditional learning activities and classroom work are losing the previous priority in the conditions of the ubiquitous Internet and the latest information-communication technologies (ICT). ICT is distinguished by a bewitching interface, accessibility, visibility, entertaining, highly informative, interactivity, visualization capacity, manufacturability, network mass, sensitivity to user requests, etc. Such capabilities of ICT weaken the attractiveness of traditional teaching and learning for students. To solve this problem, it is necessary to organically bind and intertwined the latest ICTs in the training process without reducing the essence of the academic activity (developing cognitive competencies of the personality), and in order to strengthen interpersonal relationships and cooperation in learning (Shutenko et al., 2018). According to students, such training courses in which teaching carried out at the expense of the wide and diverse use of latest ICTs cause live interest and enthusiasm throughout the entire semester.

2. The attractor of research activity stands out for its importance for students in terms of their self-realization as future highly qualified and competitive specialists. It is no secret that the taste for the profession, the initial experience of discoveries is inculcated precisely in scientific work, in joining with scientific knowledge and generalized methods of cognitive-heuristic activity. At the same time stronger scientific and production potential of the University creates more opportunities for students' self-realization.

To increase the attractiveness and effectiveness of the research sphere, more personalization of the scientific work itself is necessary, and it should be ensured by the following conditions:

- the presence in the University of a developed scientific and experimental infrastructure, scientific schools and directions;
- performance of research work by all teaching staff;
- personal assignment of students to the teacher-scientist as a consultant (supervisor, tutor, facilitator, etc.);
- the formation of various student scientific communities (scientific-problem groups, laboratories, sections, etc.);
- conducting special classes to master the methodology and technology of scientific research;
- performing by students of scientific, practical and experimental work as freelance lab assistants, laboratory assistants of design bureaus, departments, etc.;
- regular intra-University student scientific conferences, round tables with the invitation of leading scientists, practitioners with the possibility of publishing and licensing student work;
- wide support and stimulation (including material) of students scientific initiatives, projects and achievements, instilling the image of a successful student as an inquisitive scientist.

The person-centric construction of the research sphere in a University as a space for students' self-realization can serve as nutritional basis and necessary aid for their work as motivated and trained specialists (Shutenko A. and Shutenko E., 2008).

3. The attractor of sports-wellness activity is directly related to ensuring healthy development and self-realization of students as fully functioning subjects. The presence at the University of various sports and tourism structures (societies, circles, clubs, etc.), as well as the development of sports infrastructure (a stadium, a court, a swimming pool, a gym, etc.), regular sporting events, health days, etc. contributes to a youth spirit of competition is the basis for disease prevention and acquires a taste to the culture of a healthy lifestyle. Unfortunately, a big number of students have no interest in physical education and sports or they do not want to do it at all. In this regard it is important to cultivate an intra-University atmosphere of fashion and prestige of sports, to make certain places and forms of sports and recreation work accessible for all students, to overcome formal and commercial approaches in the organization of sports-health activities at the University.

4. The attractor of volunteer work has become noticeably actual in the student community recently. Volunteerism is a special form of social service, which is carried out by free will and aimed at selfless provision of social assistance and socially significant services. Attractiveness of volunteer activity involves a socially approved effect of manifestation students' personal properties in a situation of disinterested initiative for the sake of caring for the welfare of other people. This effect provides the attractiveness of volunteering, which activates the internal mechanisms of self-development of students, as harmonious socially responsible personalities, without compulsion or self-serving motivation. It happens due to actualization of moral foundations of their self-awareness. Volunteer work has a positive impact on the social situation of development, it contributes to the expansion of young people's self-awareness and self-realization. Discovering new forms of socially useful experience and meaningful activities, it expands the horizons of students' life prospects, brings more clarity in understanding the world picture, their role and place in it. Moreover, volunteering helps to overcome a certain paradox in the youth consciousness, disunity and alienation in the youth community (Shutenko et al., 2019).

5. The attractor of artistic-creative activity and amateur activity plays an important role for students' self-realization in terms of their full self-expression and self-expression as talented and outstanding individuals. The presence at the University of various cultural structures (theater, music, art, dance studios, choir, circles, clubs and workshops, various amateur creative associations, clubs of cheerful and smart, etc.) activates the inner creative forces and abilities of students, contributes to the versatile manifestation of their personality, forms their culture of self-expression and self-presentation, contributes to the harmonious development and liberation of their intellectual potential. In order to involve students into this important area of self-development, it is necessary to avoid formalism and demonstrativeness, low-grade themes and templates of mass culture, culture of entertainment and worthless self-affirmation, mystical and postmodern exercises, etc. It is essential to be ruled by moral guidelines and universal values.

6. Today the attractor of innovative-entrepreneurial activity is a component of organization of students' intra-University life that is really advantageous for their self-realization as capable and competitive subjects of the market economy in various areas of business. In University practice, such an attractor is represented in the activities of small innovative enterprises (SIE). Studying this form of students' self-realization, we stated that at the socio-psychological level SIE is a community of employees, who self-

realize creatively; each of them makes his own personal contribution to the development of a new idea or product, develops as a competent and creative specialist while realizing their essential powers. Innovative work at SIE opens up more opportunities for self-realization for students and, in general, increases their competitiveness in the contemporary labor market. In this regard University SIEs significantly enrich the learning process, filling the well-known gap between the students' knowledge gained in the classroom and the experience of their application in practice. University graduates become not only knowledge holders, but also bearers of various innovations; they become authors (or co-authors) of all kinds of know-how, which noticeably expands the horizon of their professional opportunities and career prospects (Doroshenko et al., 2016).

7. Attractor of information-media activity involves students' working in various bodies of the University press, University press center, their participation in cooperation with the media, as well as their work to ensure electronic information-educational environment of the University (information-educational portals, online courses, etc.), information and network communities, online discussion platforms, etc. This attractor, as an independent sphere of students' self-realization, formed while our civilization, including educational institutions, was converting to the information society and digital communication technologies (Shutenko et al., 2018). This sphere of activity attracts students by the presence of a wide range of opportunities for social recognition and communication in the world of information reality, remotely inclusive mode of work, possibilities for endless communication and exchange of information, versatile construction of new forms of communication and interaction, rapid dissemination and verification of personal experience and knowledge.

8. The attractor of social-civic activity involves students' participation in the work of various student and civil public organizations, student councils, trade unions, military-patriotic, search, educational, civil law, environmental and other associations and organizations. This attractor plays an essential role in the formation of a mature social identity of students, in the development of their civic orientation and responsibility, as well as in the growth of self-awareness as a capable and competent social subject. Unfortunately, sometimes in University practice, this attractor fades due to excessive bureaucratization and control by the administrative structures of the University, which significantly reduces the overall level of attractiveness of this sphere and transforms it into meaningless nominal work "just for the record". In this regard the decisive factor is the independence and individual initiative of student public organizations, the introduction of relevant and topical content in the agenda of these organizations, the support of their informal structural ties and sincere interpersonal relationships.

9. The attractor of cross-cultural communications stands out as an independent sphere in connection with the entry of Universities into the international educational and cultural space of learning and professional training. Today, leading universities in their faculties and training courses teach foreign students who come from a different social environment and culture. For their harmonious social integration into the national culture and the higher education system, they need help and participation from Russian students as carriers of this culture and potential friends. Many students willingly and eagerly participate in this interesting activity; they understand it as a selfless help to their foreign fellow students, as a chance to improve their language practice and linguocultural competence, etc. Work in the centers of cross-cultural communication, international student associations and organizations greatly enhance the students' cultural picture of the world, perfects their national and cultural identity, acquaints them with the values and traditions of the foreign-language culture, increases the cultural resources of their self-realization in future international cooperation (Ryzhkova and Sergeev, 2019).

Each of the above attractors of students' self-realization as an independent area of activity is allocated very conditionally, since in practice the attractive spheres are closely intertwined and interconnected. For example, it is difficult to imagine a volunteer attractor without the public-civic or information-media one, as well as a research attractor is closely connected with an innovative-entrepreneurial one. Moreover, the presented set of attractors is not universal and differs among universities of various specializations. It is obvious that in each individual case a particular University has its own attractive forms and spheres of ensuring the students' life activities, builds its own unique socio-cultural environment for the development and self-realization of the personality (Romanova, 2020a).

Significance of attractors for students of different specialties

At the first stage of our research the identified attractors of self-realization indicated the presence of potential areas of students' involvement that the University can offer. Meanwhile, the real effect of these attractors on the students' development and the actual degree of their attractiveness for each student remained in question.

It is obvious that the presence of certain areas and fields of the University activity is a necessary,

but insufficient condition for students' self-realization. It is important that these areas pass into the category of real attractors for students, they should change from potential forms of activity to actual and personally significant ones, so that they arouse genuine interest, have value and actually attract students (Romanova, 2020b).

In order to determine the actual impact of the selected attractors on the process of students' self-realization within the walls of the chosen University, we organized the second stage of our study.

We conducted a diagnostic survey of the students to assess the degree of influence of selected attractors on them and their involvement in the scope of these attractors.

During the survey students were asked to rate on a 10-point scale the degree of real attractiveness of each of the nine marked attractors in the logic of completing the next three sentences-connnotations. The survey's stimulus material is presented in table 1.

Table 1
Stimulus material of the method for assessing the subjective significance of areas of intra-university activity

The questions for survey and answer options	Assessment in points (from 1 to 10)	Key (numb attractors)
<i>In process of studying at our University I am attracted first of all by</i>		
1| ... group classes	<input type="text"/>	1.
1' ... research work	<input type="text"/>	2.
1: ... sports-wellness activities	<input type="text"/>	3.
1: ... participation in volunteer work	<input type="text"/>	4.
1: ... participation in artistic-creative and amateur activities	<input type="text"/>	5.
1: ... work in innovative enterprises of the University	<input type="text"/>	6.
1| ... information-media sphere of activity	<input type="text"/>	7.
1' ... social work and participation in University self-government	<input type="text"/>	8.
1: ... international activities of the University	<input type="text"/>	9.
<i>I am glad that at my University I can express myself in such areas as</i>		
1. ...innovative-entrepreneurial work	<input type="text"/>	6.
2. ... artistic-creative and amateur activities	<input type="text"/>	5.
3. ... research work	<input type="text"/>	2.
4. ... volunteer work	<input type="text"/>	4.
5. ...information-media activities, work in the press center	<input type="text"/>	7.
6. ... learning-cognitive (seminar, practical, etc.) classes	<input type="text"/>	1.
7. ...international activities of the University	<input type="text"/>	9.
8. ... sports-wellness activities	<input type="text"/>	3.
9. ... social work and participation in university self-government	<input type="text"/>	8.
<i>While studying at our University I would like to express myself more in</i>		
1. ... research work	<input type="text"/>	2.
2. ...social work, in student organizations	<input type="text"/>	9.
3. ... sports-wellness sphere	<input type="text"/>	3.
4. ...international activities of the University	<input type="text"/>	9.
5. ...learning-cognitive activities, while studying the subjects	<input type="text"/>	1.
6. ...information-media sphere, in media work and communications	<input type="text"/>	7.
7. ...volunteer work	<input type="text"/>	4.
8. ...innovative-entrepreneurial sphere	<input type="text"/>	6.
9. ... creative activities and amateur activities	<input type="text"/>	5.

The results of data processing regarding this survey allowed us to determine the level of appeal of attractors and the degree of the students' involvement in the scope of the attractors. The results were calculated by figuring the average weight of each attractor over the entire array of data collected from the students. Summary results of the attractors' rating for the students of humanitarian and technical specialties are shown in tables 2 and 3, respectively. The tables show the average ratings of the significance of the attractors presented in the form of rating lists (from the most significant to the less significant).

Table 2.
Subjective significance rating of attractors for self-realization among the students pursuing humanities courses (N=106)

№	attractors of University self-realization	Level of significance (average scores for the sample)
1.	Artistic-creative and amateur activities	6,7
2.	Learning-cognitive activity	6,5
3.	Volunteer activity	6,1
4.	Research work	5,9
5.	Information-media activity	4,7
6.	Social-civic activity	4,3
7.	Cross-cultural communications	3,5
8.	Sports-wellness activity	2,8
9.	Innovative-entrepreneurial activity	2,6

Table 3.
Subjective significance rating of attractors for self-realization among students pursuing technical courses (N=108)

№	attractors of University self-realization	Level of significance (average points for the sample)
1.	Research work	6,9
2.	Learning-cognitive activity	6,7
3.	Sports-wellness activity	6,6
4.	Social-civic activity	5,5
5.	Information-media activity	5,1
6.	Artistic-creative and amateur activities	4,6
7.	Volunteer activity	3,6
8.	Innovative-entrepreneurial activity	3,4
9.	Cross-cultural communications	3,1

According to the summarized attractors' rating data, the total distribution of the maximum ratings does not exceed 70 % and the minimum ones do not fall below 25% of significance, which generally corresponds to the parameters of the normal data distribution for the standard sample.

In terms of content it is noteworthy that the students pursuing humanities courses consider the attractors of artistic-creative, learning-cognitive, volunteer and research activities to be the most significant ones. Moreover, most of all they are attracted by artistic and amateur spheres, ahead of the educational and scientific activities. In addition, the attractor of volunteer work is highlighted, which takes the third place exceeding the importance of scientific work. Among the attractors with the least appeal there is sports and recreation sphere, as well as innovative and entrepreneurial activity.

Students *pursuing technical courses* are primarily attracted to the traditional fields of study at the University (scientific and educational). It is also noteworthy that there is a fairly pronounced level

of attractors of sports-wellness and recreation activities, the latter serve as a good prerequisite for the formation of foundations of physical and psychological health. The rating is closed by the attractors of innovative-entrepreneurial activity and cross-cultural communications, which indicates a slight business and international orientation of technical students.

In general, these results emphasize the specifics and differences in creating the intra-University climate, which are inherent to the work of different universities. Thus, the technical institute has developed a number of small sports organizations, sections and circles that attract students actively, which is reflected in the results of their subjective rating of self-realization attractors. At the same time the Humanities University has a well-developed network of artistic and creative workshops, studios, amateur interest groups, etc., which has led to a high rating of attractiveness of this sphere according to students' assessments. Meanwhile, we cannot but become alert because of the lowered general indicators of traditional academic spheres, and above all, attractors of the learning-cognitive activity and scientific-research activity, which should be leading motivators of University training for most students regardless of specialization.

The intensity of attractors among the students with different levels of self-realization

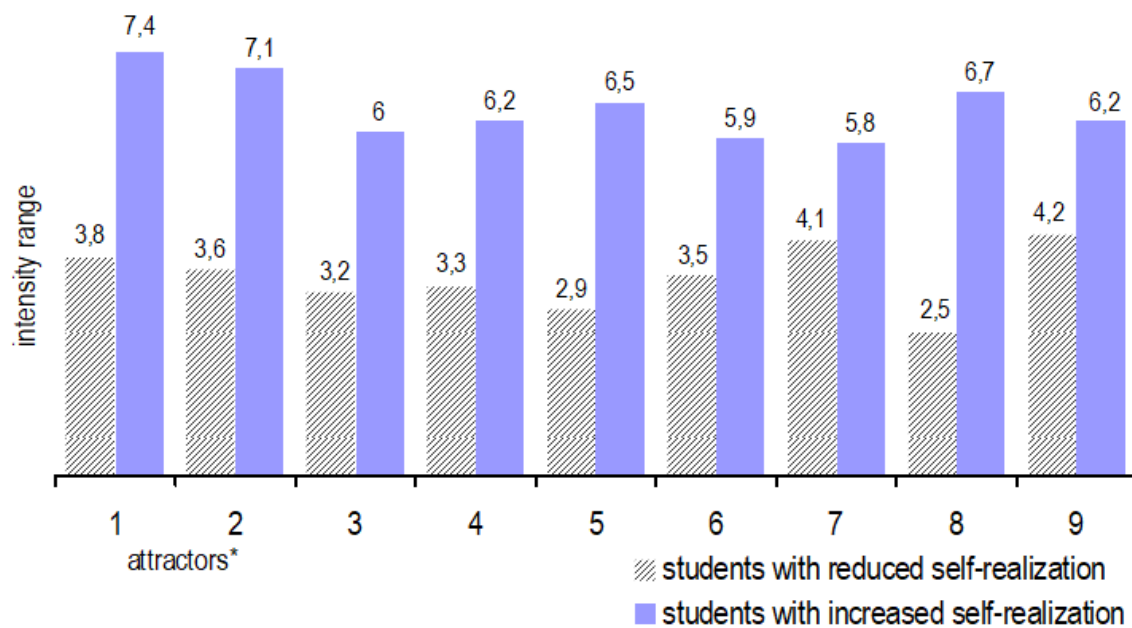
In order to test the main hypothesis statement, we conducted a comparative study of the manifestation of the above attractors among the students with different levels of self-realization in higher education. The third stage of research was devoted to solving this problem.

The empirical work consisted in referring to the data on the level of students' self-realization in learning who took part in this research work. We took into account the experience we accumulated during the previous research cycle in the framework of our scientific work (Shutenko, 2013; Shutenko, 2015). We applied a special technique – Method for studying self-realization in higher school education (Shutenko A. and Shutenko E., 2008). This questionnaire reveals the level of success in mastering the content and methods of training, the degree of disclosure of personal potential and versatile self-manifestation of students in the University environment. The concept of self-realization in University education, which is operationalized in this method, means the process and result of the active development of the essential forces and abilities of students as capable and competent individuals through educational resources and socializing opportunities of the University. This method measures the following indicators (scales) of self-realization in University environment: 1) personal involvement in the learning process, 2) implementation of personal abilities, 3) social inclusion and acceptance in the University community (Shutenko A. and Shutenko E., 2008).

As a result of this technique implementation, two polar groups of students with high and low indicators of self-realization in the learning process, respectively, were selected from the entire array of students (214 people) of both Universities. In quantitative terms, these groups formed in the following ratio:

- students with an increased level of self-realization at the University - 52 people;
- students with reduced level of self-realization at the University - 49 people.

For each selected group we processed and calculated the average indicators of the presented attractors manifestation. Then we performed a comparative analysis of these indicators in different groups of students by comparing them on each attractor. To verify the reliability of differences, we applied for calculating statistically significant differences (Student's t-test), which makes it possible to determine the level of significance of differences in the obtained data in two samples of students. Figure 1 in the form of histograms shows the generalized summary data of indicators of both groups of students – with expressed and unexpressed self-realization in learning process. This figure shows the overall configuration of indicators of attractors' manifestation that differs significantly in all items in relation to the groups of students with different degrees of self-realization in learning (see Fig.1). Students with increased self-realization have a higher rate of their involvement in the scope of the presented attractors; in this group the significance indicators do not fall below 5,8 points (on a 10-point scale). Such spheres as learning-cognitive activity, research and social activities, artistic-creative and amateur one are of special attraction and significance for them, which is traditionally appropriate for students with an active life position and motivation for self-development in the field of education (see Fig.1).



*Note. Attractive spheres: 1 – learning-cognitive; 2 – research; 3 - sports-wellness; 4 – volunteer; 5 – artistic-creative; 6 – innovative-entrepreneurial; 7 – information-media; 8 – social-civic; 9 – cross-cultural interaction.

Figure 1. Summary data on the subjective significance of attractive spheres of University life for students with different levels of self-realization in learning

Table 4.

Comparative data on the subjective significance of attractive spheres of University life for students with different levels of self-realization in learning (by *t*-criterion of Student)

No	Attractive spheres	students with reduced self-realization (average values)	students with increased self-realization (average values)	<i>t</i> -empirical, $p \leq 0.01$
1.	learning-cognitive activity	3.82	7.4	14.5
2.	research activity	3.6	7.1	13.3
3.	sports-wellness activity	3.2	6.0	8.5
4.	volunteer work	3.3	6.2	8.1
5.	artistic-creative activity	2.9	6.5	9.8
6.	innovative-entrepreneurial activity	3.5	5.9	8.5
7.	information-media activity	4.1	5.8	6
8.	social-civic activity	2.5	6.7	11.6
9.	cross-cultural interaction activity	4.2	6.2	6.2

As reflected in the figure 1 and Table 4, students with reduced self-realization do not show a strong interest or desire to be involved in the potential attractive spheres of self-development offered by the University. According to the generalized data on the significance of these spheres for students, they do not act as attractors for them, since their attractiveness does not exceed an average of 4.2 points (on a 10-point scale of significance) (see Fig. 1). Such spheres as public, sports-wellness, artistic-creative one got substantially low ratings. It is important to note essentially reduced indicators of the significance of the leading areas – learning-cognitive, as well as research one, which are the core of University training of a qualified specialist.

Discussion

The results obtained in the course of the study provide grounds for confirming the hypothesis that there is a direct relationship between the level of students' self-realization at University the degree of their involvement and personal immersion in the scope of attractive spheres of educational and extracurricular activities of the higher school. The more the students are involved in various forms and spheres of higher school activities, the higher the probability of their successful self-realization and psychological well-being in the process of University training is.

In this regard, the results obtained can be useful for teachers, parents and anyone who is concerned about the full development of today's student youth. The study shows that the common denominator of their efforts can be the provision of an active and versatile lifestyle of students, their involvement in various forms and spheres of manifestation of their personality both in academic and extracurricular activities, using educational and socializing resources of higher education as attractors of self-realization. Unfortunately, the opposite trend has been observed recently. There is a reduction in the socializing and developing opportunities of higher education.

In this study, the attractors of students' self-realization were determined in the conditions of normal classroom and extracurricular work of the selected Universities. After the introduction of COVID-19 pandemic measures at these Universities, we did not study these attractors, but it is obvious that the situation has changed dramatically and not for the better. Many of the above-mentioned attractors have lost their power, and no new attractive spheres have appeared.

In the current period of University education in the context of the pandemic new risks and difficulties for the self-realization of student youth have emerged. The use of distance learning and teaching has led to the curtailment of traditional classroom forms and methods, significantly distorted the educational space of Universities, including the students' learning activities within the framework of digitalization of education. Under the influence of quarantine measures in extra-curricular practice many important spheres of intra-University life (social-civic, sports-wellness, mass-cultural, artistic-creative, amateur, etc.) have been frozen. They actually ceased to fulfill their functions as sources of self-development and self-realization of students. Thus, the regime of self-isolation in University education has become a difficult test for higher education, for its socio-cultural viability and formative potential as the most important aspects of professional and personal growth of the personality. Will a higher school be able to provide high-quality education and development of students in the face of challenges of digitalization and remoteness of education or turn into a banal portal for information loading of consciousness? This question already requires a solution in the current period and is becoming the most essential for the scientific and teaching community from the point of view of their professional identity and appropriateness in the realities of informatized education.

Conclusion

This study presents the conceptualization of the phenomenon and process of students' self-realization as a value of the system of University training and criterion of its success. In the experimental part of the research the concept of attractors for students' self-realization in the system of University training is studied and verified. This category is introduced to identify appealing spheres and forms of manifestation of students' personal efforts and potential, which are important factors in maintaining their psychological well-being and harmonious development.

The significance of this result is in determining the range of important activities of a modern University to ensure full self-realization of students. In the practical part of the study, some areas and spheres of the University's activity were identified that have signs of an attractor: learning-cognitive, research, sports-wellness, volunteering, artistic-creative, innovative-entrepreneurial, sphere of information-media activity, social-civic, sphere of cross-cultural communications.

As a result of a diagnostic survey of the students pursuing humanities and technical courses, the degree of subjective significance of the selected attractors is identified. Moreover, the dependence of students' self-realization on the degree of their involvement in the scope of attractive spheres of University educational and extracurricular activities is confirmed.

The study showed that if the main spheres of University life psychologically act as attractors for students' self-development, then with a significant share of probability it is appropriate to suppose successful personal growth and self-realization of students. In this regard the presence (or absence) of attractors can in a certain sense predict opportunities (or obstacles) for self-realization, and thus, the

categories of attractors proposed in our study can be applied as a sociocultural predictors of psychological well-being and full-fledged development of students in the University educational environment.

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Conflict of interests

The authors declare no conflict of interest.

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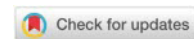
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The Ideal L2 Self as a Factor of Self-Motivation in Willingness to Communicate

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Abstract: Theoretical basis of this paper is the heuristic L2 Motivational Self System (L2MSS). The research aims to determine the degree to which the ideal L2 self can be regarded as a significant factor with regards to its power to make a difference in students' actual motivated behaviour in L2 communication. The research sample consists of 396 students. The ideal L2 self is a predictor variable. Willingness to communicate and the obtained grades are criterion variables. Gender, period of time spent learning English / German, and whether students are residing in the country where the target language is spoken are all moderator variables. Systematic non-experimental observation method based on Dörnyei and Taguchi's survey was used in this study. Cronbach's alpha indicated high reliability in the presented sample (.92). Willingness to communicate was investigated using McCroskey's questionnaire. The findings indicate a rather complex picture of the observed L2 MSS constructs and the importance of their components in the field of L2 learning. Therefore, for further research, it is suggested that the ideal L2 self should be divided into two constructs: obligations that the individual would like to comply with and obligations that others expect him/her to comply with. The contribution of the L2 learning experience should also be considered because otherwise, it is difficult to determine the progress of the model design and what to do with it in practice.

Keywords: Ideal L2 self, self-motivation, willingness to communicate in L2 language.

Introduction

Over the last two decades, motivation has come to be regarded as one of the basic variables and an important factor in predicting the efficiency of learning. In the modern, globalised world and as a result of the growing need for learning foreign languages, motivation has become the focus of attention in the field of language studies. This is especially visible in the field of English language, which is considered to be lingua franca nowadays, but is equally important in learning other languages (Goĳkov-Rajić et al., 2021a; Evtugina et al., 2020). Given the fact that foreign languages are being learned from an early (preschool) age, and that their mastery is at the top of the list of currently required competencies in almost all educational policies in the world, it is understandable that, as the result of these changes, the role of motivational orientation in learning a second/foreign language (L2 - English, and others) is the main focus of language studies. Studies on motivation in learning a second/ foreign language (L2) have evolved in recent decades in line with changes in understanding constructs in personality psychology, and in the last two decades, this motivation has been linked to the concept of *self* (Dörnyei and Ushioda, 2011). Thus, the need to understand L2 motivation is also related to existing constructs in personality psychology. The term *I*, or *self*, has become the main theoretical construct that dominates the field of studying motivation in foreign language learning (Goĳkov-Rajić, Šafranĳ and Goĳkov, 2021b).

Researchers are focused on validating the L2 Motivational Self System (L2MSS) model (Dörnyei, 2006), which includes the ideal L2 concept in predicting willingness to communicate (WTC). Dörnyei (2006) presented the L2 motivational self-system (L2MSS) which, he believes, can explain individual differences in motivation when it comes to foreign language learning. Elements of several theoretical assumptions related with the concept of *self* (Markus and Nurius, 1986; Dörnyei, 2006; Higgins, 1987; Gardner et al., 2010, etc.) are interlaced within this model, thus attempting to understand individual differences in language learning motivation.

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The basic assumption of the L2MSS is that when individuals notice discrepancy between their current state and the future self-guide (i.e. ideal or necessary), this deviation can function as a motivator to bridge the perceived gap and achieve the desired goal or state. The first broader examination of this model was conducted by Dörnyei (2009a, 2009b), reporting on numerous empirical studies that confirm the values of the proposed L2MSS model. Consequently, the interest in the field of language motivation has seen tremendous growth. Over a single decade, hundreds of studies have appeared worldwide (Boo, Dörnyei and Ryan, 2015), making L2MSS the prevailing theoretical framework (Boo, Dörnyei and Ryan, 2015). As the literature states, this can be attributed to the model's versatility and ability to adapt a wide range of perspectives from different theoretical orientations to the field of motivation to learn a foreign language (Ibid.).

The L2MSS consists of three main components (Dörnyei, 2006, 2009a):

- The first component is the **ideal L2**, which refers to the desire and hope of an individual to master an ideal level of knowledge of the language he/she wants to reach, or which would be ideal or desirable to reach. Thus, the **ideal L2 represents one's hopes and desires**;

- The second component, the **ought-to L2 self**, is needs-oriented and indicates the need to know/master L2 of the country where an individual would like to settle. This need, and therefore the motivation stimulated by the expectations of others, **represents the expectations that were projected and imposed by others**.

- The **L2 learning experience** is at the second level and refers to one's **experience in the immediate learning environment**, including aspects such as: the teacher, the curriculum, and the peers.

For the purpose of understanding research findings presented in this paper better, it is important to highlight the relation of L2 self construct with human behaviour patterns that allow interaction between motivational psychology and personality psychology. This has opened room for a new research area of **possible self** (Dörnyei, 2009b). According to Marcus and Nurius (1986), the notion of possible self aims to explain the way the individual currently perceives his/her potential, conceived as the *self*, by means of which he/she can determine the emergence of his/her predicted behaviour in the future. According to the above-mentioned authors, the possible self (the ideal self) represents what an individual would do to realize his/her intentions or desires; what he/she wants to become, what he/she could become (Markus and Nurius, 1986). Thus, it has been concluded that L2MSS is based on the theory of possible selves ("L2 Motivational Self System") proposed by Dörnyei (2006, 2009b). As mentioned earlier, the same author recognizes three main components of this model: the **ideal L2** - individual's desire and hope to adopt an ideal level of language proficiency, the **ought-to L2 self** - expectations projected and imposed by others, and the **L2 self-experience** - immediate learning environment. Another important conclusion is that the components of motivation in this framework not only point towards understanding motivation within oneself but also establish that it can be used to mobilize personal strength for L2 achievements in foreign language learning, as it is directly related to the individual's current perception of himself/herself and ideally oriented towards the L2 future (Dörnyei and Chan, 2013; Williams, Mercer and Ryan, 2016). It could, therefore, be concluded that the essence of this understanding consists of the idea of progressing gradually from the current to a more desirable, higher state, which largely depends on the person's willingness to reach the visualised standards of his/her ideal self. If individuals increase their awareness with regard to acquiring new skills and strategies necessary to fill this gap, this self-awareness will actually represent motivation, i.e. an incentive to invest more effort in developing the intended behaviour. It could be pointed out here that the L2MSS motivational system aims to explain the way in which a person's current perception of his/her potential, conceived as an *I/self*, can affect the emergence of predicted behaviour in the future. Therefore, the possible *self* represents what an individual would like to become, what he/she could become (Markus and Nurius, 1986). Rooted in the theory of possible selves, the L2MSS proposed by Dörnyei (2006, 2009b) as a new framework, not only locates motivation within the self but also assumes that directing efforts towards L2 learning achievement is immediately associated with one's current view of himself/herself and ideally oriented towards the L2 future (Dörnyei and Chan, 2013; Williams, Mercer and Ryan, 2016). Consequently, the essence of L2MSS is in the idea that the ideal self operates as a driver for progressing gradually from the current to a more desirable state. The higher state mainly depends on one's willingness to reach the visualised standards of the personal ideal self.

Accordingly, previously mentioned potential of **possible selves** acts as a motive for future actions, which suggests that the ideal L2, representing "characteristics that one would ideally want to possess" (Dörnyei, 2014), can increase the willingness to communicate (WTC).

Willingness to communicate is another, also frequently studied variable in foreign language learning and teaching research. In general, it is based on the belief that one participates in communication of one's own free will, and WTC as a construct assumes that avoiding spoken discourse is likely to result in

distorted learning effects in L2 contexts (Öz, 2016). WTC is essentially an abbreviation for “a composite variable of a multitude of individual variables, acting on the acquisition and use of a second language, resulting in a construct in which psychological and linguistic factors are integrated in an organic way” (Dörnyei, 2006, 2009a). Therefore, WTC represents the level of psychological willingness to direct and maintain L2 communication and is widely considered to be the primary factor behind the success in L2 learning (MacIntyre and Doucette, 2010).

Processes behind the development of the L2 WTC and its essential characteristic related to the inter-group variables and processes woven into a set of characteristics that are supposed to affect L2 learning and communication are clearly shown in Figure 1 (MacIntyre et al., 1998).

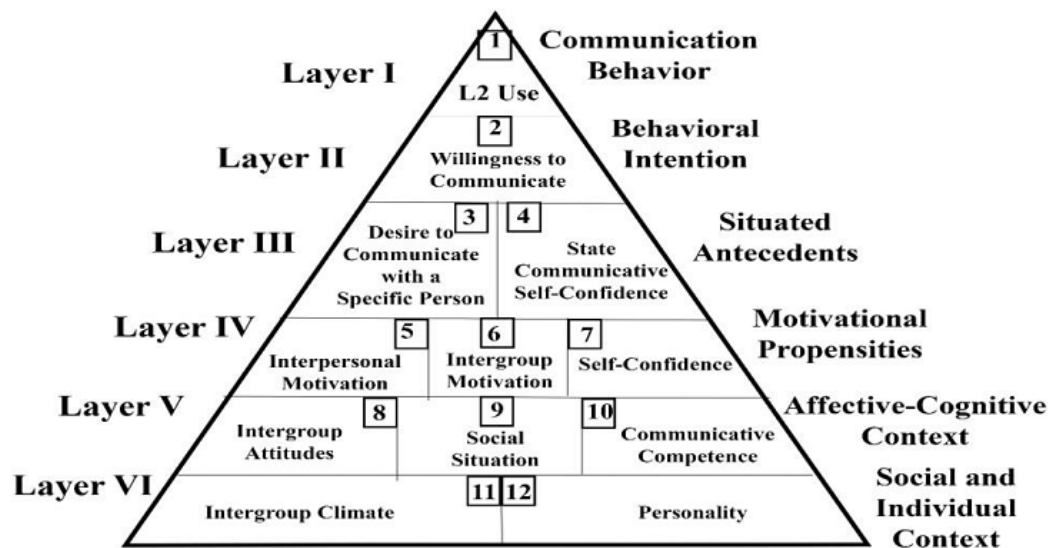


Figure 1. Heuristic model of L2 WTC (MacIntyre et al., 1998)

This chart presents the proposed heuristic WTC model in the form of a pyramid, which provides a multidimensional construct in a six-degree framework that encompasses the psychological and communication dimensions of the language, such as self-confidence, attitude, desires, willingness to communicate, etc. (MacIntyre et al., 1998). Those are believed to affect L2WTC.

Figure 1 (MacIntyre et al., 1998) shows the relation between the constructions of the *self* and the behavioural patterns within the field of motivational psychology and personality psychology in the newly created language research field that relates to the possible *self* (Dörnyei, 2009b), for which Marcus and Nurius (1986) seek to explain how the individual's current perception of his/her potential, conceived as I can determine the emergence of predicted behaviour in future. As previously concluded, the possible *I* represents what an individual would do, what he/she would like to become, what he/she could become (Markus and Nurius, 1986). This points to the assumption that the L2MSS, proposed by Dörnyei (2006, 2009b), with the above-mentioned components of the ideal L2 self (recognizing the needs of the L2 self and L2 learning experience) is like a framework for initiating motivation in terms of positioning it within ourselves. But it also goes a step further, in terms of direction and guidance; therefore, it has the property of driving the effort towards L2 learning achievement. The chart with the heuristic L2 WTC model (MacIntyre et al., 1998) presents the relation of the current *self* (self-view) and is ideally oriented towards the future L2, which has been the focus of much research for the last two decades (Dörnyei and Chan, 2013; Williams, Mercer and Ryan, 2016). This model is a graphical representation of the previously developed idea of progressing gradually from current to a more desirable state with a significant motivating role towards achieving a higher position, which mainly depends on the person's willingness to reach the visualised standards of the ideal self. Consequently, higher level of awareness, as a perceived need to acquire new skills and strategies necessary to fill this gap, i.e. self-awareness, turns into motivation, becoming an instrument that encourages investment of more effort in developing predicted behaviours. Accordingly, the above-mentioned authors explain the potential of possible selves to act as a stimulus for future activities in mastering a foreign language, i.e. communication, where ideal L2 is a part of the self “characteristics that someone would ideally want to have” (Dörnyei, 2014: 65), which can further increase willingness to communicate (WTC). This prompts researchers to focus on the explained construct, as it combines (see Figure 1) many variables of the individual that have been identified as the ones affecting the acquisition and use of a second language, i.e. psychological and linguistic factors, which are integrated organically

(Dörnyei, 2006). Thus, it can be seen that WTC is actually intertwined psychological willingness for initiating and maintaining L2 communication, and therefore, at the level of current knowledge of these constructs, it is widely accepted as the primary success factor in L2 learning (MacIntyre and Doucette, 2010). At the same time, WTC is the initiator of many studies seeking to validate it. The findings of some of these studies are presented in this paper.

After a preliminary consideration of theoretical assumptions, the starting point of this research has been the assumption that the presented heuristic L2 WTC model is comprehensive and that it clearly explains the processes underlying the development of L2 WTC, relying on intergroup variables, which are the basis of processes rooted in individual characteristics that are assumed to affect L2 learning and communication. Another starting point is the assumption that this theoretical model encompasses proximodistal ambiguous construct that integrates linguistic, psychological, and communicative dimensions of a language. These dimensions are expected to affect L2 WTC (MacIntyre et al., 1998). Another important point of research, the findings of which have been presented in this paper, is the conclusion that the first three layers of the six-layer pyramid model represent situation-specific influence, while the other three layers at the bottom refer to the individual's stable characteristics (ibid.). The first two layers, behavioural intention and communication behaviour, build the upper part of the pyramid and are considered location-sensitive parameters that show variances among individuals at a certain time and in a certain place when communicating. On the other hand, when observed from the top to the bottom, the chart moves to more visible specific influences related to long-term characteristics. In terms of content, these layers relate to the following:

- Layer VI contains most of the most distant elements, intergroup climate, and personality; these are considered stable and include innate hereditary characteristics.
- Layer V reflects the affective-cognitive state of the individual and mainly explains personal attitudes and motives.
- Layer IV, similar to the previous layer, brings together communication-oriented tendencies that exert a very consistent influence in different situations (MacIntyre et al., 1998).

By means of analysing the model presented above, it can be concluded that the layers and sections presented are interdependent: each subsequent layer rests on the previous one, and as long as these relations are permanent and the time parameters given in the diagram work efficiently in the desired direction, the person will be progressing gradually towards reaching his/her goal, which is at the top of the pyramid and relates to L2 communication. Most researchers conclude that this model ignores the shortcomings of previous models that had limited potential effects on L2 WTC, because they treated this construct mainly as a personality trait, thus lacking a wider range of constructs that constitute potential predictors of communication, i.e. L2 WTC (Peng, 2012).

As for the topic of this paper, it is important to mention that, in recent decades, studies have been increasingly focusing on potential L2 WTC predictors, such as extraversion/introversion, self-confidence, anxiety, integrativeness, i.e. personality traits, but also motivation itself (Yashima, 2002). Special interest has been shown in individual's communicative competencies, as one of the correlates in WTC (Kim, 2004; Peng and Woodrow, 2010). Therefore, researchers conclude that there is potential parallelism between one's ideal L2 and L2 WTC. Research findings show that the ideal L2 self constitutes larger part of planning efforts that facilitate development of L2 communication skills (Noels, 2009).

Having in mind all these considerations, this study aims to provide further insights into a potential correlation that seems to exist between the above-mentioned ideal L2 and willingness to communicate among students at Serbian universities. When it comes to WTC, the situation is complex and not completely clarified but the interest in this topic is stimulated by the fact that a large number of studies is focusing on the relationship between L2 WTC and several variables, such as perception of competence and anxiety (Baker and MacIntyre, 2003), motivation (Peng, 2007), identity styles (Zarrinabadi, 2014), age, gender (Donovan and MacIntyre, 2004) and attitude (Yashima, 2002). Special focus is placed on the notion of "perceived communicative competence" (Baker and MacIntyre, 2003). Moreover, studies dealing with L2 WTC predictors (Peng and Woodrow, 2010; Yashima, 2002; Yashima, Zenuk-Nishide and Shimizu, 2004; Yu, 2008) are emerging with arguments about the individual's perceived communication abilities that can be considered a strong L2 WTC predictor (Mehmet, 2020; Shirvan et al., 2019). Namely, there are several studies dealing with the predictive value of the ideal L2 self in WTC in L2 context (Peng, 2015). Their findings show that there is interrelationship among variables such as the L2 motivational self-system, L2 anxiety, and L2 WTC. Peng (2015) failed to find any significant correlation between the ideal L2 and L2 WTC, whereas Munezane (2013) noted a direct path from the ideal L2 to the L2 WTC. His findings supporting the statement that the ideal L2 only predictively foresees L2 WTC have been confirmed by a subsequent study (Munezane, 2015). Similarly, Kanat-Mutluoglu (2016) illustrates the predetermined path

from the ideal L2 to L2 WTC. Research findings on motivation in second and foreign language learning are also interesting for the topic of this paper. Dörnyei (2006) argues that studies on L2 motivation should adopt a two-stage approach, one for learning English and one for learning some other foreign language. Therefore, he proposed a new L2 motivation as a framework that takes into account the role of English as a world language. A study conducted in Croatia (Martinović, 2018) examined the motivation to learn English or German among Croatian students using this new framework (L2MSS), taking into account different motives for learning English or German as a foreign language. The results indicated that the period of time spent learning English / German language insignificantly affected students' motivational disposition. Higher levels of motivation regarding L2 and stronger *ideal L2 self* were found among students as pragmatic motives, associated with career success and higher grades. Some difference was also found among students of biotechnology, who showed the lowest level of L2 motivation. Some difference regarding gender was found across different kinds of motivations, including higher levels of intended effort and pragmatic motives related to avoiding negative outcomes among female respondents, while male respondents reached higher levels on the ideal L2 self-assessment scale.

It is crucially important for the topic of this paper, and the research itself, to include findings of meta-analysis on the L2 self-motivational system in the initial considerations (Dörnyei, 2006, 2009a). In meta-analysis, based on 32 reports, which included 39 unique samples and almost 33,000 respondents learning foreign languages, three components of the L2 motivational system i.e. ideal L2 self, ought-to L2 self, and L2 learning experiences, were significant predictors of subjective effort, although weaker predictors were also found in objective measures of achievement. In addition, significant heterogeneity was observed in most of these correlations.

As previously mentioned, the ideal L2 self has received a lot of attention from researchers in the recent decades. However, as it was also stated, the results led to a series of conclusions, some of which were polarized. Those who inspired this research will be listed. Accordingly, based on the findings, the predictive validity of the ideal L2 self is described as "direct" (Dörnyei and Ushioda, 2011) and "solid confirmation" (Dörnyei, 2009b) with granted validity (Dörnyei, 2014). Moreover, Dörnyei and Ryan (2015) claim that all validation studies conclude that the L2 motivational self-system corresponds well with the data. Ghanizadeh and Rostami (2015) further state that their results verify the model in virtually every context. These comments generally refer to the ideal L2 self, which is also confirmed in the findings of other researchers (Ghanizadeh, Eishabadi and Rostami, 2016; Henry, Davydenko and Dörnyei, 2015; Islam, Lamb and Chambers, 2013; Teimouri, 2017).

However, there are also findings of other researchers who express considerable reluctance (Al-Hoorie, 2018). The research conducted by Kim and Kim (2011) shows that in the case of Korean high school students ideal L2 self is not a predictor of school grades. Therefore, they conclude that motivation based on the development of the ideal L2 self through dominant visual aptitude is irrelevant to the level of academic achievement. Similarly, Lamb (2012) applied the C-test to students in Indonesia and also found that the ideal L2 self cannot predict their knowledge (Al-Hoorie, 2018). He also noted that, although his students would like to see themselves as future users of the English language (ideal L2 self), what made them more likely to invest effort in learning was their assessment of whether they felt positive in the learning process (Ibid.). In Canadian context, MacIntyre and Serroul (2015) examined the relationship between the ideal L2 self and the actual L2 performance in their idiodynamic paradigm, which measures individual motivational variability over time. As they reported, they failed to find any evidence that the ideal L2 self was dynamic or adapted to the changing requirements of the task. In Iranian context, Papi and Abdollahzadeh (2012) also found that the ideal L2 self fails to predict actual classroom behaviour (Al-Hoorie, 2018).

As for previous findings, it could be noted that the students' ideal vision of their future L2 self fails to show much influence on their motivated behaviour in English classrooms (or some other foreign language), or vice versa. In other words, regardless of the level of the students' ideal L2 self, their actual motivated behaviour in the classroom will remain unchanged, and regardless of the student's motivation in the class, their ideal L2 will be unchanged (Papi and Abdollahzadeh, 2012: 588).

In Saudi context, Moskovsky et al. (2016) found the ideal L2 self to be a negative predictor of language proficiency. Researchers claim that the results generally "indicate, at best, a weak link between self-guidance and achievement".

Limited space does not allow more arguments in this direction, but they can be found in literature, and based on everything stated above, it could be concluded that new findings indicate a rather complex scenario of the observed constructs and their importance in foreign language learning. It is probably due to the applicability of the model to different contexts or participants, or the use of different outcome measures (Al-Hoorie, 2018). In his meta-analysis, Al-Hoorie (2018) offers a good description of the situation, noting

that researchers agree that the ideal L2 self should be improved. [Dörnyei and Chan \(2013\)](#) admit that although (according to Al-Hoorie) the ideal L2 self plays certain role in shaping students' motivational thinking, in many linguistic contexts it lacks the power to make a difference in their actual motivated behaviour. It is also noted that, while participants considered external pressure valid and intended to adjust their behaviour accordingly, this intended effort failed to reflect in their actual grades.

Research results further conclude that it is necessary to include the difference between ought-to L2 self/others, both in the ideal L2 and what L2 should be. From this perspective, the ideal L2 self should be divided into two constructions: one representing one's hopes and one representing the hopes of others. Similarly, self-governing L2 should be divided into obligations that one would like to perform and obligations that others expect to be performed ([Papi and Teimouri, 2012](#)). In one of the few quantitative studies, [Teimouri \(2017\)](#) tested the significance of ought-to L2 self/others for the language learning context in which one of the significant results found supports the difference between ought-to L2 self/others, but not the ideal L2 self. Teimouri argues that ideals are highly internalized and consequently they may not be divided into those that relate to the self and the ideals of others (what is needed). However, the possibility to assess the contribution of these findings in terms of improving the original construction is related to the reference framework. Thus, without quantifying the predictive validity of the original L2, and the other one (which is needed), it is considered difficult to determine the progress of this construction. Therefore, findings of new tests in new meta-analyses are expected, which is, actually, the purpose of this research.

The available space limits broader analyses of findings related with available meta-analyses, but it would be important to mention the findings that open up questions regarding the construct marked as "L2 learning experience" or "attitudes towards language learning". Meta-analysis conducted by [You, Dörnyei, and Csizér \(2016\)](#) noted the existence of significant overlap in the scale used to measure them, as well as the fact that the L2 learning experience functions at a different level than the ideal L2 self or other expectations regarding the L2 self. On the contrary, the L2 learning experience deals with attitudes and assessments related with the current learning environment and does not act as a future-oriented self-guide. It is believed that this construct has received very little attention due to the growing interest in self-guidance over the recent years ([Boo, Dörnyei and Ryan, 2015](#)). Dörnyei describes the L2 learning experience as a situated, executive motive ([Dörnyei, 2009b](#)) and model's causal dimension ([Dörnyei, 2006](#)). Findings of meta-analyses indicate that little has been done to clarify the role of such executive motives and mechanisms behind their causal action, making it the least theorized construct in L2MSS ([Ushioda, 2011](#)). Nevertheless, the L2 learning experience has been described as the strongest predictor in L2MSS ([Lamb, 2012](#); [Teimouri, 2017](#)). It has also been concluded that most studies that tested this construct in the field of foreign languages are observational and that the standard design includes administering a scale for students and examining the relationship (correlation, regression, or modelling of structural equations) between the results on this scale and other criteria measured. [Marks, Fairris and Belecheand \(2012\)](#) emphasize the need for caution in interpreting observational studies, citing several factors that may lead to distortion of findings, which raises serious doubts as to the validity of these studies. In addition, the analyses of experimental research in several educational studies conducted in different parts of the world ([Al-Hoorie, 2018](#)) are also being questioned. This is just another stimulus for the question behind this research, aimed to contribute to the accumulation of sufficient findings related with quantitative studies. Assessment of the confidence interval of effects reported in these studies would contribute to the clarification of conflicting results.

Thus, in line with the title, the subject of this research is the ideal L2 self, with close attention focused on its importance regarding self-motivation in willingness to communicate in a foreign language. Therefore, the question that guides this research is: what is the role of the ideal L2 self in shaping students' motivational way of thinking when it comes to their willingness to communicate in a foreign language, or what is the role of the ideal L2 self in shaping motivation to communicate in a foreign language? In other words, to what degree can the ideal L2 self be considered a significant factor in observing the power of making a difference in students' actual motivated behaviour in situations of foreign language communication?

The intention is to examine the importance of the ideal L2 self as a factor in self-motivational willingness to communicate. This would contribute to a safer qualification of the predictive validity of the *ideal L2 self* when it comes to communicating in a foreign language, taking into consideration *needs-oriented L2* and *L2 self-experience*, as well as to a more reliable assessment of the importance of designing motivational models, providing thereby a clearer orientation in directing motivation towards foreign language communication.

The basic assumption refers to the following: the ideal L2 self is a significant factor of self-motivational willingness to communicate in a foreign language.

Working hypotheses:

- The examined students have a good motivational precondition in terms of directing their efforts towards progressing gradually from the current to a more desirable state. Their willingness to reach visualised standards of the personal ideal self is high, i.e. they have a high ideal L2 self within the L2MSS motivational system.
- The ideal L2 self is in significant positive correlation with the willingness to communicate, which confirms its motivational potential for foreign language learning.
- The relationship between the ideal L2 and WTC (willingness to communicate) is influenced by the following moderator variables: gender, time spent in the country where the target language is spoken, and the period of time spent learning a foreign language.

Materials and Methods

The sample consisted of 396 participants from two faculties: 277 from the Faculty of Technical Sciences, University of Novi Sad, and 119 from the Faculty of Teacher Education, University of Belgrade. 168 were female participants (56.8%), and the average age of the subjects was 20.54 years (SD = 1.77). 59 students resided in the country where the target language was spoken, with the period of time they spent in these countries ranging between 2 weeks and 12 years.

Variables

- predictor variable: ideal L2 self;
- criterion variables: willingness to communicate, obtained grade in learning a foreign language;
- moderator variables: gender, the period of time spent learning English / German, and whether students resided in the country where the target language is spoken or not.

Organization and instruments

The research was conducted in the academic year 2019/2020, using the method of systematic non-experimental observation, based on survey procedure. The ideal L2 self-assessment was carried out using a 10-item questionnaire (Dörnyei and Taguchi, 2009), intended for self-assessing the ideal level of knowledge of the language to which the respondent aspires. The reliability was checked using Cronbach's alpha, and in the examined sample, it was = .92.

Willingness to communicate was investigated using a questionnaire (WTC; McCroskey, 1992) that offered 20 hypothetical situations in which examinees may decide to communicate or not. Situations ranged from everyday situations, such as talking to your friend, to challenging situations, such as giving a speech on an official occasion. For each situation, participants were asked to respond choosing an option from 0 to 100, indicating the level of their willingness to communicate in a given situation. The reliability was checked using Cronbach's alpha, and in this sample, it was = 0.90.

Data analysis

For the purpose of assessing the relationship between the ideal L2 self, the willingness to communicate, the obtained grade, the period of time spent learning English/German language, the gender, and whether participants resided in the country where the target language is spoken or not, the correlation coefficient was calculated: Pearson correlation coefficient for continuous and point-biserial correlation coefficient for binary variables (gender and whether the participant resided in the country where the target language is spoken) was calculated. In order to clarify the results in a more systematic way and in order to assess a partial predictive influence of predictors (ideal L2, grade obtained, the period of time spent learning English/ German, gender, and whether participants resided in the country where the target language is spoken), multiple regression analysis was performed on willingness to communicate.

Possible moderations between the ideal L2 self and other predictors were checked using the macro PROCESS for SPSS (Hayes, 2009). A total of 4 moderations was checked with 1) gender, 2) whether participants resided in the country where the target language is spoken, 3) grade obtained, and 4) the period of time spent learning English / German, as potential moderators between the ideal L2 self and willingness to communicate.

Results

Descriptive statistics for research variables are presented in Table 1. Skewness and kurtosis values of all research variables were in the proposed range of ± 1.5 (Tabachnick and Fidell, 2013), indicating that there were no significant deviations from univariate normal distributions.

Table 1.
Descriptive statistics of research variables

Variable	Min	Max	Mean	SD	Sk	Ku
Ideal L2 self	13	50	39.50	9.04	-0.80	-0.19
Duration of learning	6	19	12.84	2.10	-0.26	1.12
Grade	51	100	83.48	12.98	-0.83	-0.23
WTC	0	2000	1134.09	398.83	-0.17	-0.14

From basic descriptive indicators for continuous research variables, it can be seen that the average value of WTC was 1134, whereas the standard deviation was ~ 400 . Given the normal distribution of this variable, it can be concluded that in our sample $\sim 68\%$ of respondents have a self-assessment WTC score between 734 and 1534. For the ideal L2 self, the average score was 39.50 and the standard deviation was ~ 9 . Most scores were between 30 and 49, indicating that the L2 scores were quite high. The scores in the sample were quite high because the average score was 83.48.

Analysing these results from the perspective of the ideal L2 within L2MSS motivational system, i.e. the understanding that the ideal L2 aims to explain how a person's current perception of his/her potential, conceived as *I/self*, can affect the emergence of predicted behaviour in the future, it can be concluded that the surveyed students have good motivational precondition for directing their efforts towards progressing gradually from the current to a more desirable state, as a result of their high willingness to reach visualised standards of the personal ideal *self*. Thus, it could be further expected that this self-awareness towards acquiring new skills and strategies in the field of foreign languages will turn into motivation and become an incentive to invest more effort in developing the intended behaviour. These results confirm the first working hypothesis.

Correlation between the observed variables

Correlation between research variables is presented in Table 2. The ideal L2 self is in insignificant positive correlation with the following variables: whether the participant resided in the country where the target language is spoken, the period of time spent studying a foreign language, the grade, and the willingness to communicate. These correlations were of low intensity.

Table 2.
Correlations between research variables

	L2 self	Gender	Country	Study years	Grade	WTC
Ideal L2 self	1	0.05	.11*	.18**	.38**	.20**
Gender	0.05	1	-0.02	0.00	-.19**	-0.02
Country	.11*	-0.026	1	.13*	0.05	0.09
Duration of learning	.18**	0.00	.13*	1	0.07	-0.09
Grade	.38**	-.19**	0.05	0.07	1	0.06
WTC	.20**	-0.02	0.09	-0.09	0.06	1

It has been observed that the ideal L2 self is related to whether participants resided in the country where the target language is spoken, the period of time spent learning English/ German, the obtained grade, and the willingness to communicate. For the most part, these correlations are very low, only the correlation between the L2 self and the obtained grade are of moderate intensity. Generally, those with a higher L2 self also have higher grades. These findings are noteworthy, as they highlight the variable

assessment of success in foreign language proficiency as more significant than the others, indicating that there is a possibility that the status of the ideal L2 is not autonomous, although significant for willingness to communicate in a foreign language, compared to other components of the observed model (referring to the L2 expectations projected and imposed by others and L2 learning experiences in the immediate learning environment, including aspects such as the teacher, the curriculum and the peers). This means that further studies on this model should focus more on these two components. This is particularly important for L2 learning experience, as it is directly related to the motivational context in the classroom, i.e. the teaching, the curriculum, the context in which L2 learning and teaching take place.

The position of the grade variable is especially important, i.e. the grade obtained in learning a foreign language within the observed correlative composite of variables, because it suggests potential significance of the ideal L2 in achieving success, which justifies its role as a motivation driver. We say "potential significance", because the other components of the L2MSS, which is the basis of this paper, have not been specifically considered, and the above-mentioned studies see their contribution as more significant than the contribution of the ideal L2 self. Therefore, further research should focus on the relationship between these three components. This is explained in findings presented by (Dörnyei and Chan, 2013) in which they state that, although the ideal L2 self plays an important role in shaping the individual's motivational way of thinking, in many linguistic contexts, it lacks the power to make a difference in actual motivated behaviour. This is confirmed by findings which state that while respondents considered external pressure to be valid and intended to adjust their behaviour accordingly, this intended effort was not rewarded in their actual grades. This conclusion is confirmed by the findings of other researchers mentioned in the introductory part of this paper. They expressed considerable reluctance, stating that the ideal L2 cannot be used as a predictor of school grades, and thus, motivation for developing an ideal L2 through dominant visual aptitude is irrelevant to academic achievement. In addition, knowledge cannot be properly predicted by the ideal L2, because no relation has been found between the ideal L2 self and the actual performance in their idiodynamic paradigm, which measures individual motivational variability in certain time interval. The above-mentioned researchers did not find any evidence that the ideal L2 self is dynamic or that it adapts to the changing requirements of the task, and therefore, it does not provide any basis for predicting the actual behaviour (Al-Hoorie, 2018). Therefore, as previously mentioned, the L2MSS model requires further testing for the purpose of drawing safer conclusions about the significance of the ideal L2.

Finally, it should be noted that findings related with the significant relationship between the ideal L2 self and the willingness to communicate are insufficient for it to be considered a respectable predictor of success in maintaining motivation to learn a foreign language. This brings its motivational potential into question, which makes the second working hypothesis also open for discussion, i.e. it has not been fully confirmed, and the basic hypothesis can also be questioned, which confirms the doubts about the competence of the L2MSS structure.

Regression

The regression model with the willingness to communicate as a criterion was significant, $F(5, 290) = 4.34$, $p = 0.001$, and the predictors explained about 7% ($R^2 = 0.07$, adjusted $R^2 = 0.05$) of the criterion variance. The relative influence of predictors is presented in Table 3. The VIF indicator was close to 1 for all predictors, indicating that there were no problems with multicollinearity. L2 self was a significant positive predictor, indicating that higher grades are associated with a higher willingness to communicate. The period of time spent studying English/German language was a significant negative predictor, indicating that those who spent an average of several years learning English/German scored lower on the scale of willingness to communicate. These findings also agree with the previous ones, and support the general and first working hypothesis, confirming the significant predictor potential of the ideal L2 self, but deny the predictive significance of gender, the period of time spent studying L2, and grades, i.e. the learning achievement.

Table 3.
Relative predictive power of predictors for willingness to communicate

Predictor	Beta (β)	p	VIF
Ideal L2 self	0.23	0.000	1.23
Gender	-0.03	0.504	1.06
Country	0.09	0.115	1.02
Years of study	-0.15	0.010	1.05
Grade	-0.02	0.721	1.23

Important predictors for WTC are the L2 self and residing in the country where the target language is spoken (English/German). The L2 self is a positive predictor, meaning that those with a higher L2 self-score have higher willingness to communicate, which confirms the above statements about the hypotheses. When it comes to the period of time spent studying, the relation is reversed, which is a negative predictor. Willingness to communicate with those who have studied English/German for a longer period of time is generally lower (this relation is statistically significant, but of low intensity). This confirms the part of the third hypothesis, which assumes a significant positive relationship between the ideal L2 self and the time spent in the country where the target language is spoken, but not the part related to the variable period of time spent learning a foreign language. The part of this hypothesis that refers to the assessment of success in learning a foreign language was also confirmed in this study. It shows significance of this variable regarding willingness to communicate, but not the significance of the ideal L2 self.

Moderations

Only one of the four moderations tested was significant. The addition of the term interaction between the L2 self and gender ($F(1, 299) = 3.52, p > 0.05, L2$) and whether participants resided in the country where the target language is spoken ($F(1, 299) = 0.78, p > 0.05$) and the ideal L2 self and level obtained ($F(1, 299) = 0.62, p > 0.05$) *did not significantly improve the model*.

The addition of the term *interaction* between L2 and the years spent studying a foreign language to moderation *significantly improved the model* ($F(1, 292) = 5.45, p = 0.020$). For the purpose of being understood better, this interaction is presented in Figure 2, where the results are shown in standardized units (z-score) at low (-1 SD), medium, and high (+1 SD) levels of L2 and years spent studying a foreign language. At the low level of years spent studying a foreign language, willingness to communicate in those with high ideal L2 is higher compared to those with lower ideal L2 levels. *This difference does not appear to be present at higher levels of years spent studying L2 language, as willingness to communicate is similar, regardless of the level of the ideal L2 self.*

Consequently, it could be concluded that the only significant interaction is the one between the ideal L2 self and the years spent studying L2 language, which means that the number of years spent studying a language moderates the relationship between the ideal L2 self and WTC. The interaction analyses whether the influence of the ideal L2 self on WTC varies at different moderator levels. The chart shows that the difference is higher at lower levels (fewer years spent studying English / German), and those with higher ideal L2 self also have a higher WTC, while the WTC of those who have studied English / German for a longer period of time is close to average, regardless of the level of ideal L2 self.

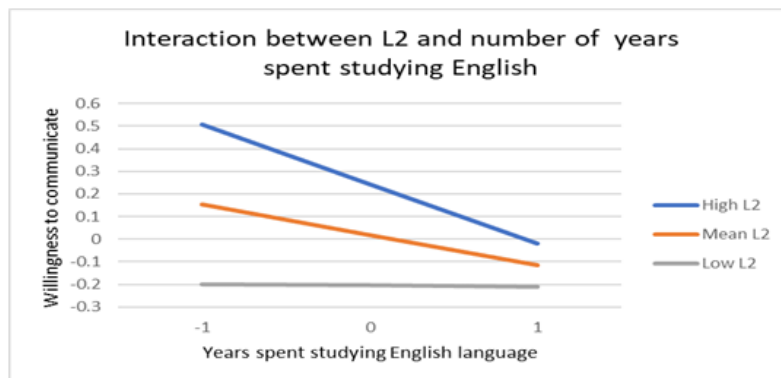


Figure 2. Interaction between ideal L2 self and years spent studying English/German language

The above conclusions further support the third hypothesis, because they confirm the significant influence of residing in the country where the target language is spoken, as well as that the duration of studying does not affect the interaction between the ideal L2 self and the willingness to communicate, as the variable years spent studying failed to moderate this relationship in a positive direction. The assumption that interprets these findings has been stated above.

Discussion

The basic descriptive indicators for continuous variables suggest that the average values are normally distributed for the WTC and a high percentage of respondents (68%) show high WTC self-assessment. The findings of the ideal L2 self, i.e. the L2 assessment is rather high. As for the position of the *ideal L2* within the L2MSS motivational system, it could be concluded that these findings confirm the importance of the individuals' perception of their own potential, and that the perceived *I/self* can affect the realization of predicted behaviour, and in this case, that the respondents have a good motivational premise for directing their efforts towards gradually progressing from the current to a more desirable state. At this point, it is important to mention that the Heuristic L2 MSS Model (Dörnyei, 2006) confirmed its importance for further study of motivation in foreign language learning by affirming good position of the ideal L2 self. These findings are consistent with the findings of other researchers (Dörnyei and Ushioda, 2011; Papi and Teimouri, 2012) and confirm the logical paradigm of Dörnyei's L2 motivational self-system (Dörnyei, 2006, 2009a) which focuses on the student's L2-self perception, especially on the perception of the desired future self-efficacy. The findings also fit into the presented multidimensional construct given in Figure 1. (Heuristic model of L2 WTC, MacIntyre et al., 1998), which includes psychological and communicative dimensions of language that are believed to be able to influence L2 WTC, such as personality traits, self-confidence, attitude, desires and willingness. Going one step further, here we can also include Bandura's (2001) social-cognitive theory in which beliefs regarding self-efficacy drive a person to perseverance, concentration, avoidance of confusion and further engagement in achieving the desired goals, i.e. success. Due to the complexity and range of psychological dimensions, self-confidence is considered a broader and more stable trait related to the individual's perception of his/her overall ability, and, therefore, important for learning foreign languages (Kleitman and Stankov, 2007).

Another significant conclusion relates to the fact that the ideal L2 self is strongly associated with residing in the country where the target language is spoken, as well as with the WTC (willingness to communicate in that specific language). This points to the possibility of including other aspects of motivation in addition to the ideal L2, which is significant for willingness to communicate in L2 language compared to other components of the observed model (indicating L2 expectations projected and directed by others and L2 learning experience in the immediate learning environment, including aspects such as the teacher, the curriculum and the peers). Consequently, the status of the ideal L2 is not autonomous, which is indicated by correlations between L2 and student achievements (obtained grades in a foreign language). These findings are encountered in the research of Dörnyei and Chan (2013) who state that the ideal L2 has the status of the motivational driver, but other components of the L2MSS motivational system should also be taken into account for the overall achievement, and in this case, this construct can be significant for students' achievements, which does not destabilize the multidimensional construct of the L2 WTC Heuristic Model, but rather complements its structure. Further research would be required to confirm this statement, because other research findings (Martinović, 2018; MacIntyre and Doucette, 2010) suggest that, even though *self plays* an important role in shaping the individual's motivational mindset, in many linguistic contexts, it lacks the power to make a difference in actual motivated behaviour. It is also noteworthy to identify external pressure (grades, tests ...) as an important factor for adjusting students' behaviour accordingly. The findings of other researchers (Al-Hoorie, 2018; Dörnyei, 2014) also display certain retention, stating that the ideal L2 self cannot be used as a reliable predictor of school grades. Therefore, they conclude that motivation to develop an ideal L2 through dominant visual propensity is insufficient for certain level of academic achievement and that the ideal L2 self cannot predict knowledge with certainty. This is because connection has been found between the ideal L2 self and the actual performance in their idiodynamic paradigm, which measures individual motivational variability in a determined time interval (Dörnyei, 2009b). It must be pointed out that these researchers lack evidence that the ideal L2 is self-dynamic, or that it adapts to the changing requirements of the task. They conclude that insufficient basis for safe prediction of actual behaviour has been provided, i.e. that the motivational matrix includes other L2 concepts (it should be L2 self and experiential L2 self) (Al-Hoorie, 2018; Williams, Mercer and Ryan, 2016; Markus and Nurius, 1986). This suggests the need for further analyses of the

ideal L2 self, and, consequently, the observed L2MSS model. Further studies on this model should be focused more on the other two components. As some other researchers point out (Martinović, 2018; MacIntyre and Doucette, 2010), special emphasis should be put on *L2 learning experience* because it is directly related to the motivational context in the classroom (i.e. the teaching, the curriculum) where L2 learning and teaching take place.

Negative correlation between the duration of language learning and the willingness to communicate is an issue that may be explained if we analyse the way in which foreign languages are taught in Serbia. Foreign languages are learned from an early preschool age; however, there are numerous challenges that must be taken into consideration. Children are taught by graduates in private schools of foreign languages. Due to the fact that there is a lack of personnel with a degree, the curriculum is poorly structured and the lessons take place only twice a week for half an hour. Notwithstanding these challenges, there are possible solutions that can help overcome the above-mentioned difficulties – foreign language learning modules providing foreign language learning for educators at faculties specialising in teacher education, as well as language learning during free activities in preschool institutions (Prtljaga, 2021).

Conclusion

This study has been dedicated to analysing the power that the ideal L2 self has to contribute to students' actual motivated behaviour in situations of foreign language communication. It aims at investigating the predictive validity of the ideal L2 self, when it comes to willingness to communicate in a given foreign language, as well as the importance of the construction of motivation models. This could propose a clearer orientation in directing motivation in foreign language communication. The surveyed students have shown good motivational assumption for directing their efforts to progress gradually from the current to a more desirable state, because their willingness to reach the visualised standards of the personal ideal self is high, i.e. their ideal L2 within the L2MSS is high. Based on everything stated above, it can be concluded that this self-awareness towards the acquisition of new skills and strategies in the field of foreign languages could be expected to turn into motivation and become an incentive to invest more effort in developing the intended behaviour. However, findings related with the importance of success regarding grades in foreign language proficiency in terms of willingness to communicate suggest the need to reconsider the predictive value of the ideal L2 self.

Suggestions for further research are as follows: the findings indicate that the ideal L2 self should be divided into two constructs: obligations that one would like to comply with and obligations that others expect to be complied with. Contribution of the ideal L2 experience should also be considered for the purpose of assessing the contribution of these components in terms of improving the original construction by quantifying the predictive validity of components of which the L2 MSS construct consists. Otherwise, it is difficult to determine the progress of the model's design and what to do with it in practice.

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Conflict of interests

The authors declare no conflict of interest.

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Education in Online Environment from Students' and Teachers' Perspective

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Abstract: The pandemic related to COVID-19 has affected education particularly in terms of the massive shift towards online teaching and study. Students and teachers had to face new challenges they had not met before. The aim of the paper is to research how both, students and teachers perceive the online educational process, to identify advantages and disadvantages of online teaching, as well as to analyze and evaluate the quality of online teaching in comparison with the attendance form of education from both students' and teachers' perspective. In order to fulfill this purpose, we carried out two separate questionnaire surveys (among students and teachers at the Faculty of Economic Informatics at the University of Economics in Bratislava). Based on conclusions resulting from our research, we can affirm that both students and teachers prefer the attendance form of education rather than online teaching, students mainly because of need of socialization, personal contact with teachers and classmates, better and faster communication with teachers, and active class discussion. The attendance form of education eliminates technology related problems, such as outages of the Internet, electricity, missing technology equipment, and this form of education is performed on higher quality level in comparison with online education. Among the most frequently limitations of online education mentioned by teachers were anonymity of students, complexity of preparation of study materials, and cheating during exams and tests. There are also some advantages the online education offers, such as time savings, more effective, creative and flexible modern way of teaching, and recording lectures.

Keywords: COVID-19, online teaching, outbreak, education, assessment, quality.

Introduction

The COVID-19 pandemic that first appeared in 2019 in Wuhan ([Abdulmir and Hafidh, 2020](#); [Ait Addi et al., 2020](#); [Aljofan and Gaipov, 2020](#)) had a negative impact on all subjects of economic and social life. The first wave of pandemic showed its power in the spring 2020, when many countries, including the Slovak Republic, adopted strict restriction measures in order to limit the spread of pandemics. Services, schools, borders were closed, movement of persons was limited, and the economic and social life was attenuated. Primary and secondary schools, and universities remained closed; teaching has moved from attendance form to an online format ([García-Peñalvo et al., 2020](#)). The same situation was in the Slovak Republic, where all schools including universities, remained closed. The University of Economics in Bratislava (hereafter referred to as "UEBA"), as well as other universities in the Slovak Republic, started the online education in the summer term of the academic year 2019/2020 in order to protect health and prevent the spread of the virus. In March 2020, The Statement of the University of Economics in Bratislava after the Crisis Staff meeting to the current situation related to the Corona Virus (2020) (hereafter referred to as "Statement of the UEBA") was issued, which interrupted the education for the first, second and third stage of full-time and part-time study. Then the Measures of the Rector of the UEBA No. 3 on the current situation (hereafter referred to as "measures of the Rector No. 3"), the Updated measures of the Rector of the University of Economics in Bratislava No. 4 on the current situation related to Coronavirus – March 12, 2020 (hereafter referred to as "updated measures of the Rector No. 4"), and the Updated measures of the

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Rector of the University of Economics in Bratislava No. 5 on the current situation related to Coronavirus – March 24, 2020 (hereafter referred to as “updated measures of the Rector No. 5”) were issued gradually, which interrupted the education for the first, second and third stage of full-time and part-time study until May 30, 2020 (included). While according to the Statement of UEBA, measures of the Rector No. 3, and updated measures of the Rector No. 4, the education was interrupted and the teaching process took the form of self-study or other relevant methods, the updated measures of the Rector No. 5 issued on March 24, 2020, stipulated the interruption of the attendance form of education, and specified that the educational process will be conducted online using online learning platforms (e. g. Moodle, Microsoft Teams, Google Hangouts Meets) followed by self-study.

According to [Usak, et al. \(2020\)](#) COVID-19 has become a new playmaker in science education. The pandemic related to COVID-19 forced universities to switch their entire instructional apparatus to one of online delivery overnight. Universities have adopted various measures in order to limit the spread of virus. [Liguori and Winkler \(2020\)](#) state that universities first implemented protocols for enhanced cleaning across campuses, disseminated messaging to remind, and encouraged behaviors such as frequently washing one's hands, not touching one's face, while also advising students, faculty, and staff to stay home if they feel ill. Then universities took steps and shifted their approach to more drastic measures by cancelling public events, career fairs, conferences, and speaker events. The UEBA's management body took similar steps in order to prevent health of students and employees. The schedule of the academic year 2019/2020 had been amended. Consultations of study departments and of the teaching staff had been canceled. Students were encouraged to communicate with these departments and teachers solely by email or by telephone. The meetings of all self-governing bodies and advisory bodies at the UEBA and its faculties (such as academic senates, scientific councils, colleges, and disciplinary commissions), state examinations, dissertation defense, habilitation and inaugural proceedings were canceled as well. According to the updated measures of the Rector No. 5, all these activities were recommended to hold exclusively online.

Thus, COVID-19 affected education communities particularly in terms of the massive shift towards online learning ([Ratten, 2020](#)). According to UNESCO, on April 1, 2020, schools and higher education institutions were closed in 185 countries, affecting 1 542 412 000 learners; on May 7, 2020, schools and higher education institutions were still closed in 177 countries, affecting 1 268 164 088 learners ([Marinoni, Van't Land and Jensen, 2020](#)).

The switch from the attendance form of education into the online form was difficult for both teachers and students. It was absolutely a new situation, which they had to deal with. Everyone was stretched beyond their comfort zone by the switch to online-only: faculty, students, administrative staff, support staff, and university management ([Sangster, Stoner and Flood, 2020](#)). The primary goal of teachers was to ensure quality teaching at the same level as during the traditional attendance form of teaching. Our paper examines the quality of the educational process in the online environment in comparison with the attendance form of education. As the teacher is ([Purković and Kovačević, 2020](#)) an important factor in the quality of teaching who can best assess what may have an impact on students in a particular teaching, a general perception could not be applied to every student and in every environment. The switch to online education was not easy for all schools in various countries all over the world. According to [Marinoni, Van't Land and Jensen \(2020\)](#) only 29% of African schools and higher education institutions were able to quickly move teaching and learning online, compared to 85% of schools and higher education institutions in Europe. Almost one quarter of African higher education institutions cancelled teaching completely. [Sahu \(2020\)](#) states that main challenges universities across the world have been facing due to the COVID-19 outbreak were: shifting from face-to-face to online classes; assessment and evaluation; international students; travel restrictions; mental health; support services from the universities. Faculty members got training to use online learning platforms either as the only delivery mode or as an add-on to face-to-face teaching ([Lim, 2020](#)). Many universities ([Dill et al., 2020](#)) did not have enough infrastructure or resources to facilitate online teaching with immediate effect. The current study examines the perception of shifting to online teaching from students' and teachers' perspective at the Faculty of Economic Informatics at the University of Economics in Bratislava. [Reimers and Schleicher \(2020\)](#) investigated what the government or network of schools had done to support the ongoing academic instruction of students in various countries around the world. A large percentage indicated “nothing”, followed by providing encouragement to schools to use online resources. Some schools had been able to rely on online platforms to continue instruction and in some countries, governments were relying on educational television to broadcast content. According to [Allen, Rowan and Singh \(2020\)](#) in many schools, the move to the online space was presenting considerable hardship as teachers struggle to adapt to what might well be the “new normal” for quite a period of time. Despite the fact that information and communication technologies education in

various forms has become an obligatory part of the curriculum (Eger et al., 2020), there are still students who do not have access to adequate technologies needed for online study in the world, including Slovakia. Furthermore, computers and other IT equipment at home were and during the online education still are in heavy demand from parents, children, and other relatives who have to work online from home. The transition to the online mode has raised questions for the universities, faculties about their capability to deal with the existing technology, and working from home has been a difficult task for the faculty (Dill et al., 2020; Sahu, 2020).

Another great challenges in online teaching were assessment and evaluation that is why the current paper examines the impact of the online education on the examination and evaluation process, too. According to Sahu (2020) the transition from face-to-face teaching to online delivery has a serious impact on assessments and evaluation. Timmis et al. (2016) argue that although technology has been used earlier to support teaching and learning, the assessment aspect was often under-developed. Applying assessments online especially at those courses designed for face-to-face learning was a challenging task. Teachers had to change the assessment types to fit the online mode. According to Watson and Sottile (2010) it is difficult to monitor how students are taking in online and to ensure that students are not cheating during online tests. Lim (2020) draws attention to the fact that students were afraid that the outbreak would affect their exam performance. That is why it is necessary to provide them with clear directions regarding the procedures for administrating exams, assignments, and projects. Bothwell (2020) suggests that faculty members should frame a flexible assessment guideline to keep in mind that students are not at a disadvantage. If any student was not able to attend a course online due to illness or any disturbance, universities should have remained as flexible as possible to ensure that he or she would not get any negative impacts in terms of grading (Sahu, 2020).

Another problem connected with online education is social distancing. Our paper partially focuses on impact of online education on students' feelings and behaviors. Reimers and Schleicher (2020) explained in their paper why the necessary social isolation measures would disrupt school based education for several months in most countries around the world. Absent an intentional and effective strategy to protect opportunity to learn during this period, this disruption will cause severe learning losses for students. In the context of the COVID-19 pandemic (Galea, Merchant and Lurie, 2020) it appears likely that there will be substantial increases in anxiety and depression, substance use, loneliness, and domestic violence. Browning et al. (2021) researched the psychological impacts from COVID-19 among university students in seven states in the USA. Their research demonstrates, there is a broad array of impacts from COVID-19 on students' feelings and behaviors. The most common changes in how students felt compared to before the pandemic were increased lack of motivation, anxiety, stress and isolation. Smaller numbers of students reported positive changes from the COVID-19 pandemic, such as optimism, productivity, adaptation, and empathy. There are many other authors Schleicher (2020), Bloom, Reid and Cassady (2020), Rose (2020) who investigated the impact of COVID-19 on teaching process and education. Sahu (2020) considers this time as the right time for faculty, students, and administrators to learn from this critical situation and to overcome challenges the online teaching brings. Students are young and energetic, and they are capable of learning through the online platform. University authorities should encourage students and faculty to stay connected through the online or any social media platform and move forward together during this extremely difficult time. The safety and well-being of students and staff members should be the highest priority. Stress caused by rapid increase of infected cases, uncertainty and anxiety about what is going to happen may lead (Kafka, 2020) to unfavorable effects on the learning and psychological health of students. Students consider the online form of education impersonal. Universities and faculties should place an emphasis on mental health support by updating the health guidelines and providing the online guidance and lectures to offer strategies for managing stress when coping with the pandemic. Students should be provided with proper psychological support well in time (Al-Rabiaah et al., 2020).

In the summer term 2019/2020 Wagner and Křehnáčová (2020) conducted a survey at the Faculty of Finance and Accounting at the Prague University of Economics and Business in the Czech Republic within the Management Accounting Course in which they analyzed the efficiency of learning approaches comparing "traditional" classroom approach and e-learning approach. In the winter term 2020/2021 Brezina Jr. and Režná (2020) analyzed the impact of COVID-19 on the teaching process at two Slovak faculties, at the Faculty of Economics Informatics at the University of Economics in Bratislava, and at the Faculty of Economics and Entrepreneurship at the Pan-European University in Bratislava.

Based on our two questionnaire surveys, the main aim of our research is to find out how both students and teachers perceive the online educational process, what are the advantages and disadvantages of online teaching, as well as to analyze and evaluate the quality of online teaching and quality of assessment (examination) methods in the online environment in comparison with the attendance form from both

students' and teachers' perspective. In this context, we have formulated these research questions (RQ):

RQ1: How do the students perceive the educational process and the assessment process in the online environment in comparison with the attendance form of education?

RQ2: Do the students evaluate the quality of educational process in the winter term 2020/2021 (hereafter referred to as "WT 20/21") at higher level in comparison with the educational process in the summer term 2019/2020 (hereafter referred to as "ST 19/20"), in general? If yes, is this evaluation influenced by gender and the year of study of students? What is the probability that student of a certain gender and year of study evaluates the quality of educational process in the WT 20/21 at better quality level than in the ST 19/20?

RQ3: How do the teachers perceive the sudden shift to the online education, and the complexity of preparation for the online educational and assessment process?

RQ4: What are the advantages and disadvantages of the online education from students' and teachers' perspective?

Materials and Methods

Instrument

Due to the sudden shift to online teaching, the university's students have been studying online from their homes for three terms yet (the ST 19/20, the WT 20/21, and the summer term 2020/2021). Some of them have not seen the school, yet. Following this new situation in educational process we researched via two separate questionnaire surveys (one for students, and one for teachers) how this change in the educational process had been perceived by students and teachers at the Faculty of Economic Informatics (hereafter referred to as "FEI") at the UEBA.

From February 27, 2021 to March 9, 2021, two questionnaire surveys were distributed to all students and teachers at the FEI via UEBA's information system. The questionnaire survey for students was organized in four sections. The first section covered questions related to the sociodemographic characteristics of the respondents (gender, level of study, year of study). The second section was related to questions about educational and assessment processes in the online environment. The third section was related to expression of students' preferences about the attendance form and the online form of education. The fourth section covered additional questions of an informative nature. The questionnaire consisted of closed questions (some of them were multiple choice questions; some of them with the possibility to add "other" answer), and of open-ended questions where students could express their feelings, and opinions (Table 1).

Table 1
Questions in the Second, Third and Fourth Section in the Students' Questionnaire

Section	Questions	Open ended question	Closed question (*multiple choice question)
2.	A: What platforms did the teachers use in the educational process in the ST 19/20 after shifting to the online environment?		X*
2.	B: What forms of assessment did the teachers use in the evaluation process in the ST 19/20?		X*
2.	C: What platforms did the teachers use in the educational process in the WT 20/21?		X*
2.	D: What forms of assessment did the teachers use in the evaluation process in the WT 20/21?		X*
2.	E: Was the education in the WT 20/21 managed better than the education in the ST 19/20?		X
2.	F: Was the assessment process in the WT 20/21 managed better in comparison with the ST 19/20?		X
3.	G: What form of educational process do you prefer?		X
3.	H: If you prefer the attendance form of education, state why.	X	
3.	I: If you prefer the online form of education, state why.	X	
3.	J: What form of examination process do you prefer?		X
3.	K: If you prefer the classical way of examination process during the attendance form of education, state why.	X	
3.	L: If you prefer the online examination during online education, state why.	X	
4.	M: Did the teachers record the lectures and provide them to students?		X*
4.	N: Would you appreciate the teachers to record the lectures and provide them to students?		X
4.	O: Would you prefer in-person or online form of state exams?		X

Source: Own processing on own questionnaire survey

The questionnaire survey for teachers was organized in three sections. The first section covered questions related to the sociodemographic characteristics of the respondents (gender, age). The second section was related to questions about managing the educational process in the online environment. The third section covered questions related to the evaluation of online teaching, analysis of limitations, disadvantages, or advantages of online education and assessment process. The questionnaire has consisted of closed questions (some of them were multiple choice questions; some of them with the possibility to add "other" answer), and of open-ended questions where teachers could express their feelings, and opinions (Table 2).

Table 2
Questions in the Second and Third Section in the Teachers' Questionnaire

Section	Questions	Open ended question	Closed question (*multiple choice question)
2.	A: How did you manage the shift to online environment? Was it challenging for you?		X
2.	B: What platforms did you use in the educational process in the ST 19/20 after switch to online environment?		X*
2.	C: How did you manage the online educational process in the WT 20/21 in comparison with the ST 19/20?		X
2.	D: What platforms did you use in the educational process in the WT 20/21?		X*
2.	E: How do you perceive the participation of students in lectures during online education?		X
2.	F: Which form of education do you consider more demanding for the preparation?		X
3.	G: What are the difficulties, limitations, and problems of online education you have met?		X*
3.	H: How do you perceive the preparation for examination process in the online environment in comparison with the attendance form?		X
3.	I: What are the difficulties, limitations, and problems of online examination process you have met?		X
3.	J: Does the education in the online environment have any advantages?		X
3.	K: If you think that the education in the online environment has some advantages, state them.	X	

Source: Own processing on own questionnaire survey

Sample

The study sample consisted of students and teachers from the FEI. The questionnaire surveys were attended by 375 students (that represents 41.03% of the total number of the FEI students) and 41 teachers (that represents 60.29% of all teachers at the FEI). The first-year students of the bachelor study were omitted from the questionnaire survey due to the fact that in the academic year 2019/2020 they had not been students of the FEI. More detailed information about sociodemographic characteristics of both samples are shown in Table 3 (students) and in Table 4 (teachers).

Table 3
Students Sample Characteristics

(*cell percentages)					
(**row percentages)					
Year of study					
(***(column percentages)					
Gender	2 nd year of study	3 rd year of study	4 th year of study	5 th year of study	Total
Level of study	Bachelor Study		Master Study		
Male	30 (*8%)	36 (*9.6%)	36 (*9.6%)	18 (*4.8%)	120 (*32.0%)
	(**25%)	(**30%)	(**30%)	(**15%)	
Female	(***29.4%)	(***32.4%)	(***40%)	(***25%)	255 (*68.0%)
	72 (*19.2%)	75 (*20%)	54 (*14.4%)	54 (*14.4%)	
Total	(**28.2%)	(**29.4%)	(**21.2%)	(**21.2%)	375 (100%)
	(***70.6%)	(***67.6%)	(***60%)	(***75%)	
	102 (*27.2%)	111 (*29.6%)	90 (*24.0%)	72 (*19.2%)	

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

Table 4
Teachers Sample Characteristics

(*cell percentages)				
(**row percentages)				
Age				
(***(column percentages)				
Gender	Up to 45 years	46 to 60 years	Over 60 years	Total
Male	7 (*17.1%)	5 (*12.2%)	2 (*4.9%)	14 (*34.1%)
	(**50%) (**29.2%)	(**35.7%) (**50%)	(**14.3%) (**28.6%)	
Female	17 (*41.4%) (**63%)	5 (*12.2%)	5 (*12.2%)	27 (*65.9%)
	(***70.8%)	(**18.5%) (**50%)	(**18.5%) (**71.4%)	
Total	24 (*58.5%)	10 (*24.4%)	7 (*17.1%)	41 (100%)

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

Due to the fact that the FEI students are in contact with teachers from six UEBA's faculties during their study, and the FEI teachers teach at all UEBA's faculties situated in Bratislava, the sample of respondents is relevant for our research. Considering the percentage of respondents participating in our research, and the facts mentioned above, the data obtained from this sample of students and teachers can be considered a valid basis for generalization of the research results.

The Statistical Analysis

After collecting data from all questionnaire surveys and eliminating incomplete answers, we performed their computer processing and analysis. We applied, among other things, logistic regression (Allison, 2012) in our analysis, and within it, analysis of marginal means also known as Least Squares Means (LS-Means), look in (Cai, 2014) or (Lenth, 2016). In comparison with classical means (arithmetic means), LS-Means are based on general linear models (Searle and Gruber, 2017; Graham, 2008), or on generalized linear models (Agresti, 2015), whose special case is the logistic regression model. Software SAS Enterprise Guide and programming language SAS have been used for analysis of marginal means. LSMEANS, CONTRAST, and ESTIMATE Statements (Chen, 2008; Šoltés et al., 2019) have been used, through which multiple comparisons (Lee and Lee, 2018), interval estimates, and predictions of probability have been applied. All results were interpreted qualitatively.

Results and Discussions

Online Teaching from the Students' Perspective

The switch to online education was sudden and unexpected. No one was prepared for this new situation, neither the students, nor the teachers. Despite the fact that at the beginning of interruption of the educational process, the Measures of the Rector recommended performing self-study, teachers tried to stay in contact with students. Regarding Table 1 question "A" the respondents expressed that teachers had used various forms of contacting students, from sending study materials via e-mail (192 respondents), Moodle (174 respondents) or other various communication platforms such as Microsoft Teams (345 respondents), Zoom (34 respondents), Google Meet (15 respondents), Skype (4 respondents), etc. Some teachers had not contacted students at all. In open ended questions (Table 1 question "H" and "I"), students expressed among other facts that they had perceived the educational process in the ST 19/20 stressful and chaotic. Pointed comments were made mostly about the difficulties with installation of various platforms on one's own computers (students usually have 5 to 7 subjects in one term that are taught by various teachers using various communication platforms), with understanding them and after all, with concentration on educational process performed by teachers who were not very skilled in using them.

Regarding Table 1 question "B", 296 respondents stated that the examination process in the ST 19/20 was performed in the form of written test through MS Teams, in the form of online written test through Moodle (245 respondents), through submission of completed assignments by e-mail (225 respondents), through oral examination via Microsoft Teams (hereafter referred to as "MS Teams"), Zoom, Google Meet or other online platforms (97 respondents). Here we can also see a wide variety of assessment forms within each subject students had to pass through.

As the pandemic situation gradually improved at the end of the ST 19/20, and the level of restriction measures was decreased, the state examinations at the FEI were held in person.

The preparation for teaching process in the WT 20/21 was regulated centrally at the university level. The winter term of the academic year 2020/2021 was planned in advance with the possibility of both forms of education – the attendance form and the online form. In case of online teaching, UEBA' authorities specified only two communication platforms, namely MS Teams and Moodle, for the educational process. Trainings and webinars organized before the beginning of the winter term contributed much to broaden knowledge and better practical skills of teachers with use and functionality of MS Teams. Due to the uniform form of online education based on MS Teams and Moodle, the diversity of communication platforms was not so broad. Regarding Table 1 question "C" students in questionnaire stated that teachers had used MS Teams (370 respondents), Moodle (147 respondents) in the educational process in the WT 20/21, and these two platforms were supplemented by sending materials via e-mail. Lectures and seminars took place through MS Teams according to a prescribed schedule. Similar results are presented in the research paper of [Brezina Jr. and Režná \(2020\)](#) where up to 98.6% of respondents stated MS Teams as the most using platform in the educational process. According to students' expressions in open-ended questions "H" and "I" (Table 1) the educational process in the WT 20/21 was clearer, more comprehensible, less challenging on technical matters. The assessment process in the WT 20/21 was also recommended to realize through MS Teams and Moodle, and according to respondents' answers (Table 1 question "D"), it had been.

Figure 1 shows students' responses to the question: "Was the education in the WT 20/21 managed better than the education in the ST 19/20?" (Table 1 question "E"). We have expected these results due to the fact that teachers took part in webinars and trainings related to MS Teams before beginning of the WT 20/21, and because of the fact that only two communication platforms had been recommended for online education in the WT 20/21 (MS Teams and Moodle).

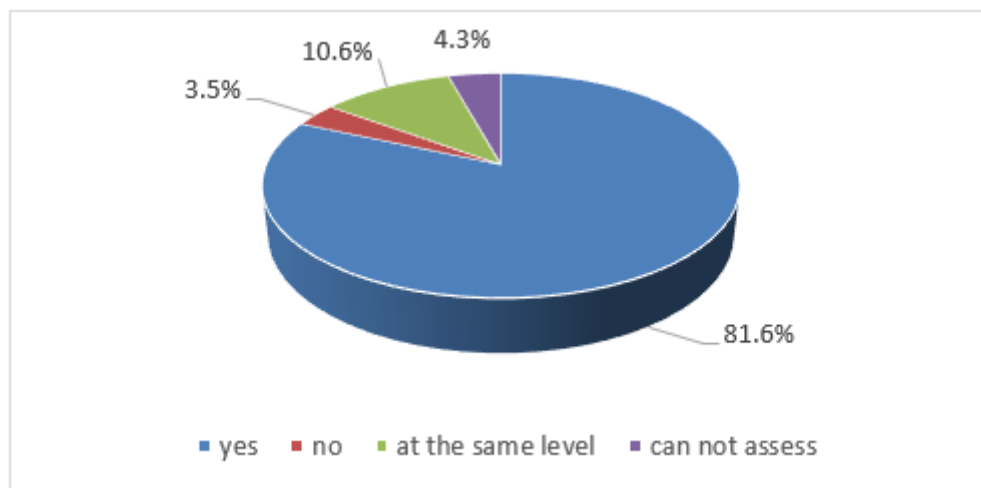


Figure 1. The response of students to the question: Was the education in the WT 20/21 managed better than the education in the ST 19/20?

Source: Own questionnaire survey

Performing a more detailed analysis of the educational process evaluation in the WT 20/21 in comparison with the ST 19/20 depending on gender, we have come to conclusions in Table 5.

Table 5

Evaluation of educational process' quality in the WT 20/21 in comparison with the ST 19/20 depending on gender

(*cell percentages)					
(**row percentages)					
Evaluation of educational process					
(***(column percentages)					
Gender	Yes, the education in the winter term was at higher level	The education was at the same level	Cannot assess	No, the education in the winter term was not at higher level	Total
Male	82 (*21.9%) (**68.33%) (***26.8%)	20 (*5.32%) (**16.67%) (***50%)	11 (*2.93%) (**9.17%) (***68.8%)	7 (*1.9%) (**5.83%) (***53.8%)	120 (*32%)
Female	224 (*59.7%) (**87.85%) (***73.2%)	20 (*5.32%) (**7.84%) (***50%)	5 (*1.33%) (**1.96%) (***31.2%)	6 (*1.6%) (**2.35%) (***46.2%)	255 (*68%)
Total	306 (*81.6%)	40 (*10.6%)	16 (*4.3%)	13 (*3.5%)	375 (100%)

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

Table 6

Assessment of the association between gender and evaluation of quality of educational process in the WT 20/21 and in the ST 19/20

Statistic	DF	Value	Prob
Chi-Square	3	22.5441	<.0001
Likelihood Ratio Chi-Square	3	21.1660	<.0001
Phi Coefficient		0.2452	
Contingency Coefficient		0.2381	
Cramer's V		0.2452	

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

Results of Chi-square tests presented in Table 6 revealed that the evaluation of the quality of educational process in the winter term in 2020/2021 in comparison with the ST 19/20 is significantly different (p -value < 0.0001) by males and females. Females (87.85%) were more likely convinced than males (68.33%) that education in the winter term had been at higher quality level compared to the ST 19/20. Males (16.67%) more often evaluated the education in the WT 20/21 at the same level as in the ST 19/20 compared to females (7.84%).

As Table 5 and Table 6 show, the quality of educational process in the WT 20/21 in comparison with the ST 19/20 has been significantly different evaluated by males and females. We subjected this evaluation to a more wide-ranging analysis using the binomial logistic regression and marginal means analysis (also known as Least Squares Means – LS-Means). For these analysis' purposes respondents (students) were divided into two groups, namely group of students considering educational process in the WT 20/21 to be at the higher level, and those who did not (this group included students who answered that the educational process in the WT 20/21 was at the same level as the educational process in the ST 19/20, and students who answered that the education in the winter term was not at higher level). Based on the model of logistic regression and applied LS-Means analysis at the significant level 0.05 it has been confirmed that this evaluation is significantly different among males and females (Figure 2 on the left). In addition, we observed that regarding the years of study we can consider students' ratings to be the same on average (Figure 2 on the right).

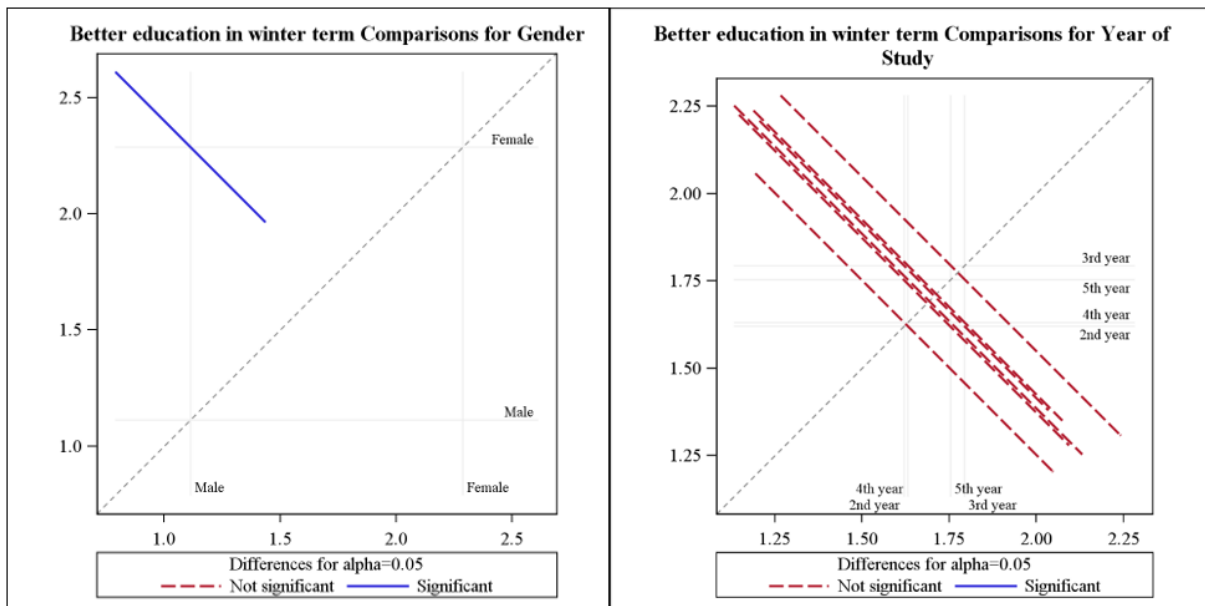


Figure 2. Comparison of LS Means of logits for gender factor and factor of year of study

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

Our analysis has revealed a significant interaction between gender and year of study. Point and 95% interval estimates of LS-Means of logits are shown in Figure 3.



Figure 3. Point and interval estimates of LS-Means of logits for interaction of gender and year of study factors

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

As Figure 3 shows, quality of educational process in the WT 20/21 was the most often evaluated “better than in the ST 19/20” by females in the 5th year of study, females in the 4th year of study (master level) and by females in the 2nd year of study (bachelor level). We observed the greatest disparities between females and males at master level of study (4th and 5th year of study). The results of statistical tests in Table 7 show, that females in the 2nd, 4th, and 5th year of study evaluated the educational process during the WT 20/21 at higher quality in comparison with the ST 19/20 at significant level 0.05 significantly more often than males in the 2nd, 4th, and 5th year of study. This finding is confirmed by positive differences in LS-Means (column “Estimate”) and p-values (column “Pr > |z|”) that are lower than the significant level 0.05. There are significant differences among all nine pairs stated in Table 7 resulting from the frequency of more positive evaluation of educational process in the WT 20/21 in comparison with the ST 19/20. Let’s note that among no other pairs there have not been confirmed any other statistically significant differences at the significant level 0.05.

Table 7

Tests of differences between LS-Means of logits for selected pairs of students’ categories determined by gender and year of study

Differences of year of study*Gender Least Squares Means							
Year of study	Gender	Year of study	Gender	Estimate	Standard Error	z Value	Pr > |z|
5th year	female	5th year	male	2.1203	0.7767	2.73	0.0063
		4th year	male	2.0149	0.7172	2.81	0.0050
		2nd year	male	1.8018	0.7237	2.49	0.0128
4th year	female	5th year	male	1.7707	0.7220	2.45	0.0142
		4th year	male	1.6653	0.6576	2.53	0.0113
		2nd year	male	1.4523	0.6646	2.19	0.0289
2nd year	female	5th year	male	1.5353	0.6389	2.40	0.0163
		4th year	male	1.4300	0.5651	2.53	0.0114
		2nd year	male	1.2169	0.5733	2.12	0.0338

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

Whilst, in Figure 2, Figure 3 and Table 7 we have analyzed logits

$$Estimated = \ln \left(\frac{\hat{\pi}_i}{1 - \hat{\pi}_i} \right)$$

that are estimated directly by logistic regression, in Table 4 we calculated Odds ratios

$$Exponentiated = \frac{\hat{\pi}_i}{1 - \hat{\pi}_i}$$

and from them according to

$$\hat{\pi}_i = \frac{Exponentiated}{1 + Exponentiated}$$

we estimated probabilities. These are probabilities that various groups of students evaluate educational process in the WT 20/21 at higher quality level than in the ST 19/20.

In Table 8 and Figure 4, there are calculated point and interval estimates of these probabilities for the categories of students that arose based on dividing students according to gender and year of study.

Table 8

Estimates of logits (Estimates), Odds ratios (Exponentiated), and probabilities (Probability) for particular groups of students

Student	Estimate	Standard Error	Pr > |z|	Exponentiated	Probability	Probability	
						Lower	Upper
Male 2nd year	1.0116	0.4129	0.0143	2.7500	0.7333	0.5504	0.8607
Female 2nd year	2.2285	0.3978	<.0001	9.2857	0.9028	0.8098	0.9529
Male 3rd year	1.9459	0.5345	0.0003	7.0000	0.8750	0.7106	0.9523
Female 3rd year	1.6422	0.3154	<.0001	5.1667	0.8378	0.7358	0.9055
Male 4th year	0.7985	0.4014	0.0467	2.2222	0.6897	0.5029	0.8299
Female 4th year	2.4639	0.5208	<.0001	11.7500	0.9216	0.8089	0.9702
Male 5th year	0.6931	0.5000	0.1657	2.0000	0.6667	0.4288	0.8420
Female 5th year	2.8134	0.5944	<.0001	16.6667	0.9434	0.8387	0.9816

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

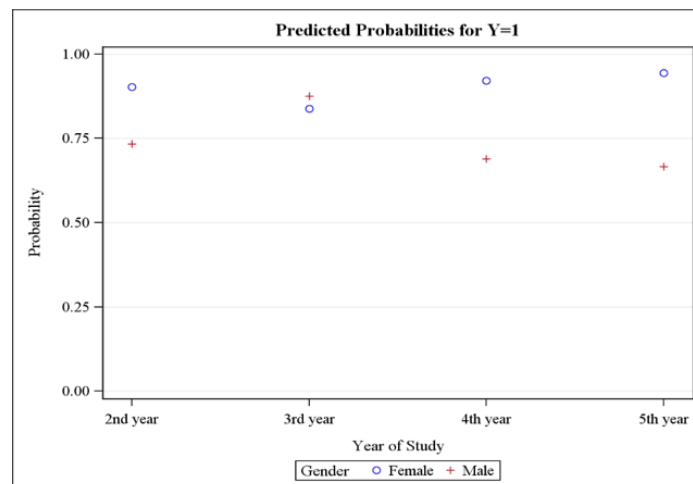


Figure 4. Predicted probabilities that student evaluates quality of educational process in the WT 20/21 at higher quality level than in the ST 19/20

Source. Own processing in SAS Enterprise Guide based on own questionnaire survey

Resulting from the logistic regression model, in Table 8 and in Figure 4, there are estimated probabilities for various groups of students based on the fact that the student evaluates the quality of educational process in the WT 20/21 at higher quality level than in the ST 19/20. As previous results have indicated, this probability is the highest among females in the 5th year of study, 4th year of study, and 2nd year of study where point estimated is higher than 90% (exactly 94.34%, 92.16%, and 90.28%). On the other hand, we have estimated the lowest probabilities among males in the 5th, 4th, and 2nd year of study, where there are the probabilities lower than 75% (exactly 66.67%, 68.97%, and 73.33%). As our previous results confirmed, females in these three grades have significantly upper probability than males. In case of respondents in the 3rd year of study there is a comparable probability among males and females regarding better evaluation of the quality of educational process in the WT 20/21 and is approximately at 85%. Interval estimates of probabilities as well as interval estimates of logits (Figure 3) revealed that all groups of students evaluated the quality of educational process at better quality level in the WT 20/21, at confidence level 0.05 (p -values in column $Pr > |z|$ in Table 8). The only exceptions are males in the 5th year of study (p -values = 0.1657), where the lower limit of confidence limit for this probability is under 50%, exactly 42.88%.

Performing a more detailed analysis of the educational process evaluation in the WT 20/21 in comparison with the ST 19/20 depending on the study level, we also observed significant differences between study levels based on the bivariate Chi-square at significance level 0.1 (p -value = 0.0638). Bachelor study students (83.10%) are more likely convinced than master study students (79.63%) that the educational process in the WT 20/21 was at higher quality level in comparison with the ST 19/20. On the other hand, 2.35% of bachelor students and 4.94% of master students think that the educational process in the WT 20/21 was not at higher level in comparison with the ST 19/20; 12.20% of bachelor students and 8.64% of master students admit that both educational processes were at the same level; and 2.35% of bachelor students and 6.79% of master students were not able to assess this situation.

Regarding Table 1 question "F", up to 62.6% of respondents stated that the assessment (examination) process in the WT 20/21 had been managed better in comparison with the assessment process in the ST 19/20, up to 26.6% of respondents think it was at the same level, up to 6.5% of respondents cannot assess, and 4.3% of respondents think that it was not better managed.

In another part of questionnaire survey, we tried to find out what form of education students prefer (Table 1 question "G"). Results are shown in Figure 5.

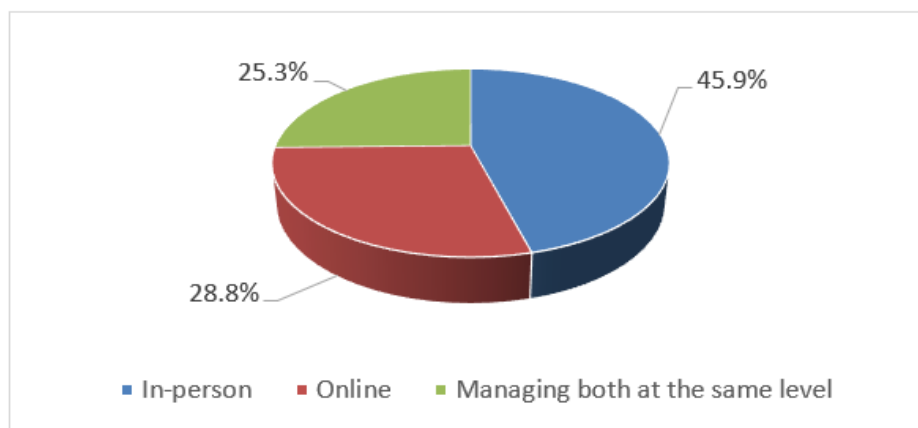


Figure 5. Preferred form of education by students

Source: Own questionnaire survey

Our research results are similar to Brezina Jr. and Režná (2020). According to their paper up to 40.3% of students prefer the attendance form, and 24.4% of students prefer the online form of education.

Based on the analysis of preferred form of education depending on the gender presented in Table 9, and on the analysis of the preferred form of education depending on the study level presented in Table 10, we found a statistically significant correlation at significance level 0.1 (p -value = 0.0605) between preferred form of education and study levels (Table 11). Statistically significant correlation was not obtained between gender and the preferred form of education.

Table 9
Preferred form of education depending on gender

(*cell percentages)				
(**row percentages)				
Form of Educational Process				
(***(column percentages)				
Gender	Attendance form	Online form	Both forms at the same level	Total
Male	53(*14.2%)	40(*10.7%)	27 (*7.2%)	120
	(**44.17%) (***(30.8%)	(**33.33%) (***(37%)	(**22.5%) (***(28.4%)		(*32%)
Female	119(*31.7%)	68(*18.1%)	68(*18.1%)	255
	(**46.66%) (***(69.2%)	(**26.67%) (***(63%)	(**26.67%) (***(71.6%)		(*68%)
Total	172 (*45.9%)	108 (*28.8%)	95 (*25.3%)	375
				(100%)

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

Table 10
Preferred form of education depending on study level

(*cell percentages)				
(**row percentages)				
Form of Educational Process				
(***(column percentages)				
Study level	Attendance form	Online form	Both forms at the same level	Total
1 st level of study	96 (*25.6%)	54 (*14.4%)	63 (*16.8%)	213
	(**45.07%) (***(55.8%)	(**25.35%) (***(50%)	(**29.58%) (***(66.3%)		(*56.8%)
2 nd level of study	76 (*20.3%)	54 (*14.4%)	32 (*8.5%)	162
	(**46.91%) (***(44.2%)	(**33.33%) (***(50%)	(**19.76%) (***(33.7%)		(*43.2%)
Total	172 (*45.9%)	108 (*28.8%)	95 (*25.3%)	375
				(100%)

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

Table 11
Assessment of the association between preferred form of education and level of study

Statistic	DF	Value	Prob
Chi-Square	2	5.6091	0.0605
Likelihood Ratio Chi-Square	2	5.6767	0.0585
Phi Coefficient		0.1223	
Contingency Coefficient		0.1214	
Cramer's V		0.1223	

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

The open-ended question in the questionnaire (Table 1 question "H") revealed mainly the following

students' preferences for the attendance form of education:

- Direct personal contact with teachers; better and faster communication with teachers; active class discussion; a more personal approach; better interaction between teacher and students;
- The satisfaction of need for socialization; direct personal contacts with classmates; better cooperation with classmates;
- Elimination of the technology related problems, problems with software licenses;
- Better concentration in school, where there are not as many distractions as at home;
- Higher quality of education; faster feedback; non-verbal communication;
- Unlimited access to study literature;
- Out-of-school activities, and so called "student life", etc.

Almost 92% of respondents preferring the attendance form of education stated missing personal contacts and socialization as the main disadvantages of online education. These students missed the direct contact with teachers, and possibility of establishing informal relationships. According to them, the attendance form of education is better for their mental health. Students are less stressed when there are schoolmates they can contact in case of misunderstanding of the curriculum. If students do not understand something, they feel better when they find out that there are other students who also do not understand, so they can communicate and help each other. Students also prefer the attendance form of education because of the time management. The daily routine is divided between study and leisure time.

The main problems, the teachers and students had to face in online world, were and still are (Daniel, 2020; Reimers and Schleicher, 2020; Sangster, Stoner and Flood, 2020; Thomas and Rogers, 2020) the access to the digital world, the missing quiet place to study in students' homes, shortage of suitable information technologies for learning or teaching, Internet access issues, including affordability, the lack of time for teachers' preparation on this new form of teaching (the change from attendance form to online format was sudden and many teachers had to improvise), staff preparation and training (in using of technology in teaching), the problems with availability of literature for students (as the school libraries were closed), etc. Children and students from homes with fewer resources and less opportunity for parental support were and still are disadvantaged in comparison with children of well-off parents, who often live in bigger houses with their own bedroom, supported by two parents, with better access to technology, books and other learning resources (Thomas and Rogers, 2020). Missing technology equipment was often stated disadvantage of the online education in our research, too. For example, not every student has two monitors, one to follow the teacher's lectures and the second one, needed for practicing the software which is explained by the teacher. According to our research results, the attendance form of education eliminates technology related problems of online education, such as outages of the Internet, electricity, delay in image and sound during the presentation. This is supported by Brezina Jr. and Režná (2020), in whose paper up to 68.4% respondents expressed problems with weak Internet connection. Students stated that during the online education, there are also problems with installing licenses for programs, in which students learn to work during their study, as the licenses are provided on university computers, but they cannot be installed on private computers.

Students prefer the attendance form of education because of the fact they are more concentrated in the school rather than at home. Home is for them a place for relax and having rest. During the online education the students suffer from the lack of study literature, because the libraries are closed in the times of lockdown. Another reason given by students who prefer the attendance form of education is time stress during the examination conducted online. Many teachers shorten too much online examination time in order to avoid cheating. Several students commented that online examination encourages students to cheat and therefore they do not prepare for the examination to the extent they would prepare in case of in-person examination. The students preferring attendance form of education expressed worries about how would employers assess graduates studying mainly online. A similar stance is taken by Sahu (2020) who states that there is concern that the COVID-19 pandemic may have a serious impact on the careers of university graduates studying mainly online. Further, the graduates are going to face the severe challenges of the global recession caused by the COVID-19 crisis. Finally, students prefer the attendance form because of out-of-school activities, and so called "student life", parties, cultural and sporting events, which cannot take place in the times of pandemic.

On the contrary, the students preferring the online education emphasized especially these reasons in open-ended question (Table 1 question "I"):

- Time savings (due to the fact that they do not have to commute to school which sometimes takes 2-3 hours every day); better time-management; more leisure time;
- Possibility to attend classes even in case of illness;
- Higher attendance at lectures since everything is organized from the comfort of home;

- The comfort of home study, better concentration at home;
- More attractive lectures.

Time savings (as the main advantage of online form of education stated by almost 96% of respondents preferring online study) in turn leads to more free time for further study, elaboration of seminar papers, final theses, working experiences, or leisure time activities. Students admitted they participate more often in lectures during online education. The reason is very simple, if a student has on a given day just one lecture, he / she does not commute to school during the attendance form of education as he / she considers it as waste of time. Up to 50% of respondents expressed that several teachers had recorded lectures and provided them to students (Table 1 question "M"). Up to 93% of respondents would appreciate the recording of lectures and seminars and providing records by all teachers to students (Table 1 question "N"). The same results were achieved by [Wagner and Křehnáčová \(2020\)](#) who also stated that students fully appreciate the recording of lectures. Many students preferring online form of education appreciated a more flexible and modern form of teaching during the online education and greater willingness of teachers to explain the studied issues.

Regarding Table 1 question "J", up to 22.3% of respondents prefer the traditional form of assessment provided at attendance form of education, and 27.6% of respondents prefer the way of assessment performed during online education. Up to 50.1% of respondents manage both forms of assessment at the same level.

The students preferring traditional form of assessment during the attendance form of education emphasized especially following reasons in open-ended question in the questionnaire (Table 1 question "K"):

- Less stress caused by technical and Internet connections matters;
- More time for examination (short time limits at online assessment);
- More independent and unbiased assessment;
- Better concentration in school environment than at home;
- Better time-management (student first answers question he / she knows the best and then works on other questions);
- Less risk of cheating;

Students without an Internet facility suffer a clear disadvantage while participating in the evaluation process, which would adversely affect their grades.

The students preferring examination taken in online education stated mainly following reasons in open-ended question (Table 1 question "L"):

- Less stress than in the school, home environment contributes much more to comfort;
- Time savings (students do not have to commute to school to pass the exam, they do not have to wake up early in the morning, and they are more relaxed when doing the exam);
- More concentration at home than in the school;
- Modern way of assessment;

Despite the fact that many students prefer the online form of learning including online examination, up to 2/3 of students in final academic years (bachelor, master) would prefer in-person form of state diploma examinations (Table 1 question "O").

The collected answers to open-ended questions "H", "I", "K", and "L" (Table 1) revealed that the online education had a significant impact on students' behavior and psychological health. Students experienced mainly negative impacts of COVID-19. Among the most mentioned changes were lack of motivation, anxiety, stress, social distancing, sadness, isolation, hopelessness, loneliness, and frustration. Similar findings were reported by other studies exploring the impact of COVID-19 on students ([Huckins et al., 2020](#); [Aristovnik et al., 2020](#); [Cao et al., 2020](#); [Elmer, Mephram, and Stadtfeld, 2020](#); [Kamarianos et al., 2020](#); [Browning et al., 2021](#)). Some students expressed their frustration in the way that they do not want to live anymore. They are missing schoolmates, friendships, face-to-face meeting. Meetings provided only online are not satisfactory enough for them. Not only family members, but even universities' representatives can help students with these problems. We agree with [Browning et al. \(2021\)](#) who suggest that universities can develop platforms that facilitate safe student social interaction. It is necessary to realize that physical distancing does not mean social distancing. There are many platforms students can communicate with each other (MS Teams can be used not only for teaching purposes, but also for online meetings with schoolmates; Zoom, Facebook, WhatsApp, Messenger, etc.). FEI's representatives in cooperation with the Student's parliament prepared various online entertaining activities, online meetings, quizzes, and videos focused on students during "corona times". The aim of these activities was to get students to know they are not alone and that the faculty and its members are here for them, whenever they will need.

Online Teaching from the Teachers' Perspective

The aim of the second questionnaire survey was to investigate the teachers' perception of the online education. Regarding Table 2 question "A", up to 19.5% of teachers' respondents considered the shift to online teaching as a new challenge. Up to half of respondents (48.8%) admitted that there were some problems at the beginning of online teaching, but finally they successfully managed the teaching process. Up to 31.7% of respondents managed the shift to online teaching without any problems. Table 12 presents the evaluation of shifting to online teaching depending on gender; Table 13 presents the evaluation of shifting to online teaching depending on age of respondents. In teachers' survey all correlations are statistically insignificant, moreover Chi-square is not correct, as we have a small sample.

Table 12
The success of shift to online education depending on gender

Gender	Difficulty of shift to online teaching			Total
	It was challenging	Some problems at the beginning, but finally success	No problems	
Male	2 (*4.9%) (**14.2%) (**25%)	6 (*14.6%) (**42.9%) (**30%)	6 (*14.6%) (**42.9%) (**46.2%)	14 (*34.1%)
Female	6 (*14.6%) (**22.2%) (**75%)	14 (*34.2%) (**51.9%) (**70%)	7 (*17.1%) (**25.9%) (**53.8%)	27 (*65.9%)
Total	8 (*19.5%)	20 (*48.8%)	13 (*31.7%)	41 (100%)

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

Table 13
The success of shift to online education depending on age

Age	Difficulty of shift to online teaching			Total
	It was challenging	Some problems at the beginning, but finally success	No problems	
Up to 45 years	5 (*12.2%) (**20.8%) (**62.5%)	11 (*26.8%) (**45.8%) (**55%)	8 (*19.5%) (**33.4%) (**61.5%)	24 (*58.5%)
46 to 60 years	1 (*2.4%) (**10%) (**12.5%)	5 (12.2%) (**50%) (**25%)	4 (*9.8%) (**40%) (**30.8%)	10 (*24.4%)
over 60 years	2 (4.9%) (**28.6%) (**25%)	4 (*9.8%) (**57.1%) (**20%)	1 (*2.4%) (**14.3%) (**7.7%)	7 (*17.1%)
Total	8 (*19.5%)	20 (*48.8%)	13 (*31.7%)	41 (100%)

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

Regarding the fact that the shift to online education in the ST 19/20 was sudden and caught teachers unprepared, we researched in what form the teachers had realized the education in the ST 19/20 (Table 2 question "B"). The teachers' responsibility and their effort to offer high quality education despite absolutely new non-standard situation and conditions caused that teachers had used various forms of communication with students:

- Sending materials to students via e-mail and checking of completed assignments;

- MS Teams platform;
- Moodle;
- Google Meet platform;
- Skype;
- Messenger;
- Zoom platform, etc.

Many teachers combined more platforms for communication with students at the same time in the ST 19/20, e.g. MS Teams and Moodle combined with sending materials via e-mails.

The preparation for the WT 20/21 was absolutely different. Regarding Table 2 question "C", up to 48.8% of teachers' respondents stated that the organization of teaching was simpler and less demanding for them in comparison with conditions in the ST 19/20. Up to 26.8% of respondents thought that organization of teaching in the WT 20/21 had been at the same level of difficulty as in the ST 19/20. It was much easier for teachers to prepare for the educational process as there were recommended only two platforms for teaching process in the WT 20/21 (MS Teams and Moodle). Teachers had used them (Table 2 question "D") in combination with e-mail communication with students. Trainings organized for teachers improved their skills for online educational process and contributed much to the improvement of teaching process. The online teaching also contributed to a higher participation of students in lectures, which was confirmed by up to 63.4% of teachers' respondents (Table 2 question "E"). This is supported by [Wagner and Křehnáčová \(2020\)](#) who investigated that the participation rate of students in virtual classes was the same or even higher compared to traditional classes.

In Figure 6 we can see the teachers' answers to the question "Which form of education do you consider more demanding for the preparation?" (Table 2 question "F"). The same results have been achieved by [Wagner and Křehnáčová \(2020\)](#) who observed that teachers spent much more time on preparation for the classes performed in online environment.

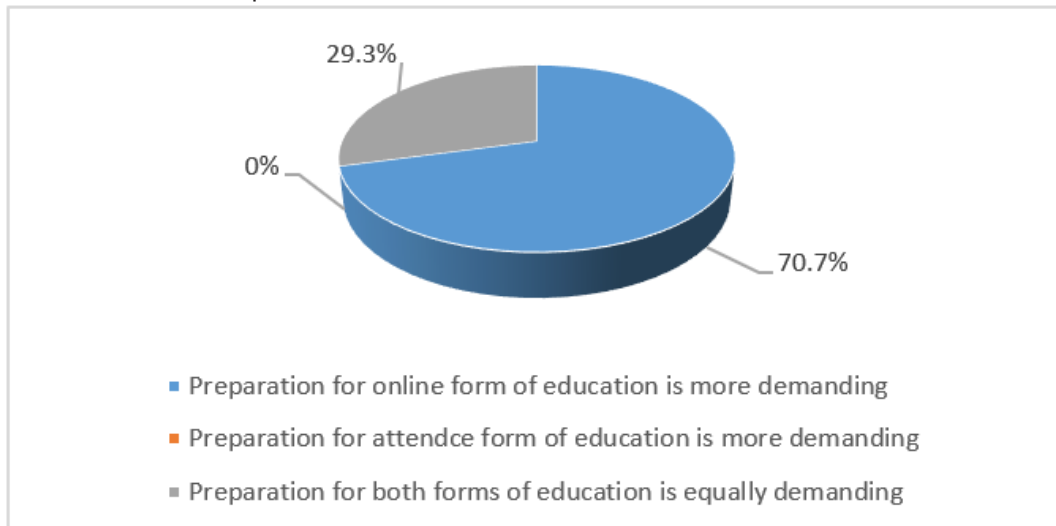


Figure 6. The response of teachers to the question: Which form of education do you consider more demanding for the preparation?

Source: Own questionnaire survey

Up to 85.7% of male respondents and 63% of female respondents considered the preparation for online education more demanding in comparison with preparation for attendance form of education. Up to 66.7% of respondents in the age category up to 45 years, 70% of respondents in the age category from 46 to 60 years, and 85.7% of respondents in the age category over 60 years considered the preparation for online education more demanding in comparison with preparation for attendance form of education. We achieved the similar results in examining the complexity of the preparing and providing of assessment process (organization of exams, the choice of suitable assessment method, etc.). Similar results were obtained in the evaluation of preparation for examination process (Table 2 question "H"), where up to 80.5% of respondents (85.7% of male respondents and 77.8% of female respondents) considered the preparation for examination process in the online environment more demanding (Table 14).

Table 14
Difficulty of preparation for examination process depending on gender

Gender	Difficulty of Examination Organization			Total
	Complexity of examination during online education is more demanding	Complexity of examination is on the same level of difficulty	Complexity of examination during attendance form of education is more demanding	
Male	12 (*29.3%) (**85.7%) (**36.4%)	2 (*4.9%) (**14.3%) (**25%)	0	14(*34.1%)
Female	21 (*51.2%) (**77.8%) (**63.6%)	6 (*14.6%) (**22.2%) (**75%)	0	27(*65.9%)
Total	33 (*80.5%)	8 (*19.5%)	0	41 (100%)

Source: Own processing in SAS Enterprise Guide based on own questionnaire survey

Regarding Table 2 question “G”, the most frequently mentioned problems, difficulties, and limitations the teachers had to face in the online teaching were (Figure 7):

- Anonymity of students;
- Lack of interaction and direct contact with students;
- Preparation of study materials;
- Problems with Internet connections; and
- Mastering the technical support itself.

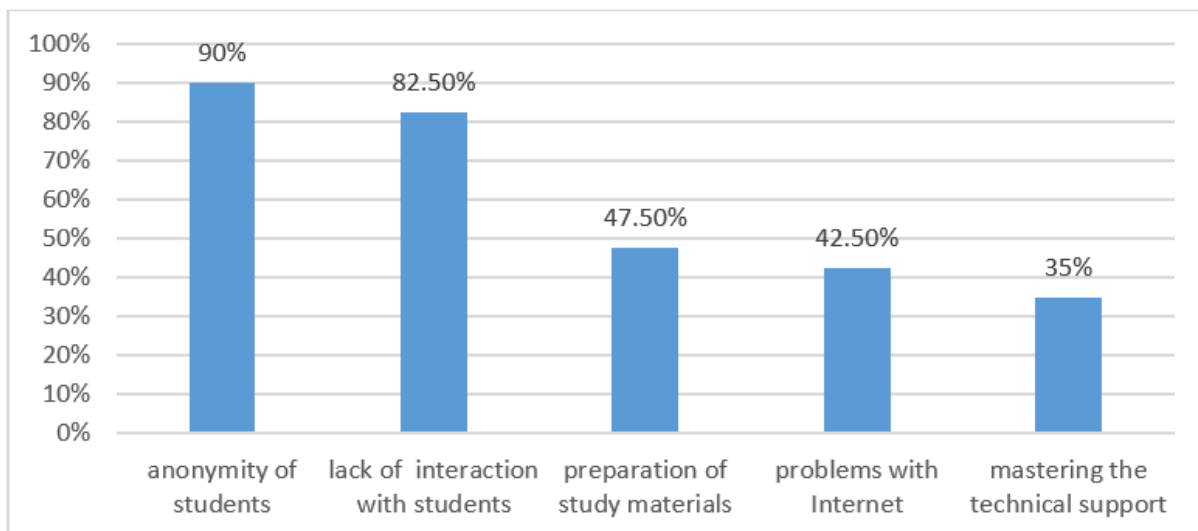


Figure 7. Limitations of the online form of education from the teachers' perspective.
 Source: Own questionnaire survey

Although up to 63.4% of teachers stated a higher participation of students in lectures, up to 90% of teachers' respondents considered the anonymity of students as the most frequent problem of online education, as it is very difficult to find out, if all students, who joined the lecture are really participating in the lecture and perceive explained issues. Up to 82.5% of teachers' respondents missed the direct interaction with students. Teachers argued that the communication with students had been impersonal at online teaching. It was mostly caused by the fact that students refused to turn on their cameras. Despite the fact we live in modern times with highly developed technologies, there are still parts of Slovakia with missing Internet connections, or with weak Internet signal. The problems with outages of the Internet, electricity, technical equipment stated almost 42.5% of teachers' respondents. Up to 35% of teachers stated among limitations of online education missing technical equipment, mastering the technical support, which include

understanding of the teaching platform, understanding the possibilities the platform offers, etc.

Regarding Table 2 question "I", the anonymity of students was the most frequently mentioned limitation (Figure 8) also in the online examination (85% of respondents). It was difficult to identify the person who actually took the test. Another problem was the choice of a suitable form of knowledge testing (55% of respondents); time-consuming preparation of examination form (52.5% of respondents); connection problems (22.5% respondents), and other technology related problems (20% of respondents).

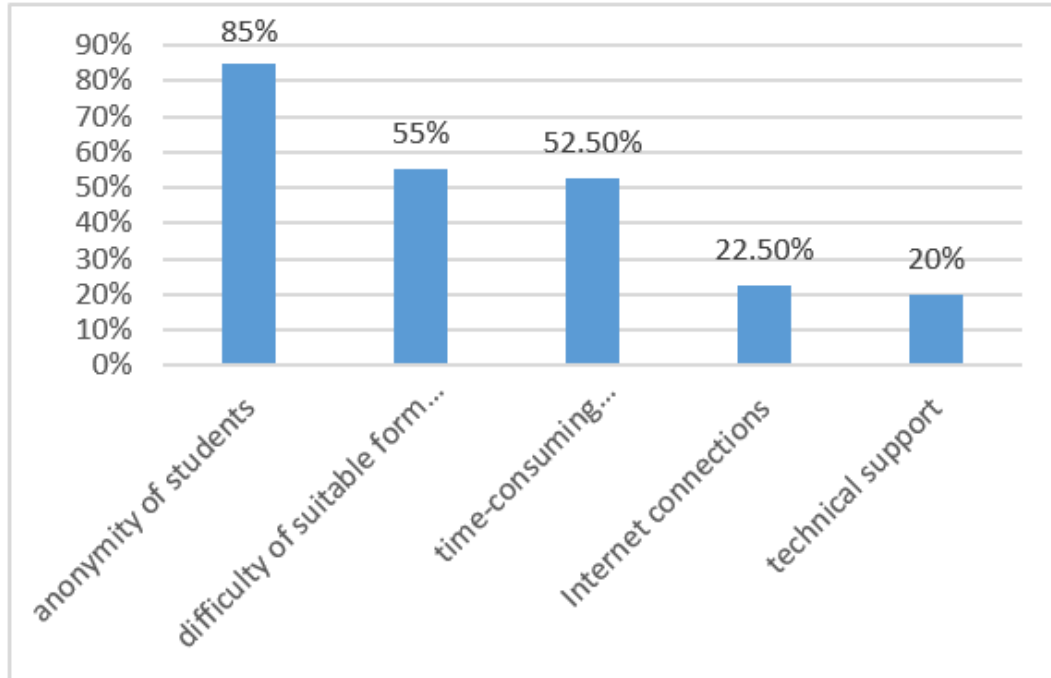


Figure 8. Limitations of the assessment process during the online education from the teachers' perspective.

Source: Own questionnaire survey

Despite the significant limitations and disadvantages of the online teaching, up to 68% of teachers' respondents admitted that online teaching has also some advantages (Table 2 question "J"), which include especially (Table 2 question "K") time savings (due to the fact that teachers do not have to commute to work every day); a modern way of teaching, which is more effective, creative and flexible; higher participation of students in lectures; the opportunity to record lectures and provide them to students (students can replay the recorded lecture at any time); full concentration on teaching (elimination of disruptive effects at lectures); accent on self-activity of students; providing education in the comfort of one's own home; new possibilities of effective assessment and automatic evaluation of tests; the transparency of this form of teaching – the possibility of downloading attendance sheets with time stamps; the system of assigning and submitting assignments with the possibility of timing. Some teachers stated that the online form of education does not have any advantages, only platforms used at online teaching have positives, to which belong possibility to perform lecture even in case of business trip of a teacher (without the need to be represented by another teacher).

SWOT analysis of online teaching

On the basis of two questionnaire surveys, where positives and negatives, advantages and disadvantages of educational forms were identified, we developed SWOT analysis of the online form of education regarding to its strengths, weaknesses, opportunities and threats (Table 15).

Table 15
SWOT Analysis of the online form of education

	Helpful to achieving the objective	Harmful to achieving the objective
Internal origin	Strengths	Weaknesses
	<ul style="list-style-type: none"> • Works/study from home comfort • Time saving • More concentration on study at home • Higher participation of students at lectures • Recording of lectures, seminars, and their providing to students • Lower study costs • Digital skills improvement • New modern education methods 	<ul style="list-style-type: none"> • Missing socialization and contact with school-mates • Missing interaction and direct contact with teachers, personal approach • Technical problems (internet and electricity outages) • Software licenses, programs used in educational process • Insufficient digital skills of teachers • More stressful assessment (time-limits) • Anonymity of participants • Cheating at exams • False participation at lectures
External origin	Opportunities	Threats
	<ul style="list-style-type: none"> • Modern way of assessment • Assessment oriented on practice • Ecological aspect (paper savings) • Opportunity to work alongside the study (thanks to time savings) 	<ul style="list-style-type: none"> • Inadequate study for exams (opportunity to cheat) • Health problems (back pain, problems with eyes) • Question of employers' attitude to graduates who studied mainly online • Availability of study literature (closed libraries) • Missing "student's life"

Source: Own research

Conclusions

In the paper we have focused on the students' and teachers' perception of the educational and examination processes in the online environment. Due to a sudden switch to the online environment in the ST 19/20, students and teachers had to face new challenges they had not met before.

Regarding the RQ1, our research proved that the online education in the ST 19/20 was considered by students stressful, chaotic and frustrating. Teachers used a wide scale of teaching platforms according to their preferences what led to huge onrush on students who did not feel comfortable and satisfied with the online teaching. On the other hand, the online educational process in the WT 20/21 was better perceived because teachers used only two recommended communication platforms, and the educational process was performed according to a prescribed schedule. After three terms in online environment, only 29% of students prefer the online education, whilst up to 46% of students prefer the attendance form of education. Both groups of students expressed their arguments for the preferred form of education.

Regarding the RQ2, we can conclude that students (81.6%) evaluated the quality of educational process in the WT 20/21 at higher level in comparison with the educational process in the ST 19/20. This evaluation resulted partially from the RQ1. Females were more likely convinced than males that education in the WT 20/21 had been at higher quality level compared to the ST 19/20. Our analysis revealed a significant interaction between gender and year of study. The quality of online education in the WT 20/21 was the most often evaluated "better than in the ST 19/20" by females in the 5th, 4th, and 2nd year of study at significant level 0.05.

Regarding the RQ3, we have investigated that teachers perceived the shift to online environment very challenging. Up to 70.7% of teachers considered the preparation for online education more demanding in comparison with the preparation for attendance form of education, and up to 79.5% of respondents (85.7% of males, 77.8% of females) considered the organization of examination in the online environment more demanding.

Regarding the RQ4, the online education is connected with many limitations, problems, and challenges. The first and main problem is the access to the digital world, shortage of suitable information technologies for learning or teaching, Internet connection, etc. Missing socialization, personal contacts with teachers and classmates are other disadvantages of online education. The students preferring online education emphasized as advantages of online education mainly time-savings related to the fact they do not have to commute to school every day, possibility to participate in lectures even in case of illness, comfort of home study, etc. Up to 68% of teachers' respondents think that online teaching has also some advantages, such as time savings, more effective, creative and flexible modern way of teaching; the opportunity to record lectures and provide them to students; full concentration on teaching. Many advantages of online education can be used in the attendance form of teaching in the future.

Our research was realized among students and teachers at the Faculty of Economic Informatics which is one of the UEBA's faculties. Due to the fact that the FEI students are in contact with teachers from all UEBA's faculties during their study, and the FEI teachers teach at all UEBA's faculties situated in Bratislava, the results of our research could be generalized to all UEBA's students and teachers, even to students and teachers of all universities of economic curriculum throughout the Slovakia. Due to the fact that each university has its own peculiarities and the sample of students and teachers was rather small in comparison with the number of the Slovak universities' students, this topic creates wide opportunities for further research in this area.

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Conflict of interests

The authors declare no conflict of interest.

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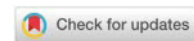
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Determining Practices of Classroom Teachers Who Have Mainstreaming and Special Needs Students in Their Classes

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Abstract: The aim of this research is to determine, interpret and provide recommendations on instructional practices and evaluation of classroom teachers working with mainstreaming students at schools in the North Cyprus. A qualitative research method was used in the research. Data was collected through semi-structured interviews as one of the qualitative data collection methods. The interview form used in the research included 10 questions related to design and teaching practices as well as evaluation of the effectiveness of the instruction. Interviews were conducted with 12 classroom teachers working at mainstreaming classes under the North Cyprus Ministry of National Education and all interviews were recorded. These data were transferred to a digital environment where they were interpreted as code titles. The results showed that classroom teachers carry out in-class practices for teaching methods and activities of their mainstreaming students, and benefit from visual materials that they prepared with an assistant teacher. However, the classroom teachers also stated that they are unable to allocate time for their mainstreaming students because of the large numbers of students in the class and therefore they send their mainstreaming students to the special education teachers in their schools. It was determined that classroom teachers make their evaluations based on the level, interest and ability of students when evaluation the effectiveness of teaching.

Keywords: Mainstreaming education, Instructional practices, Evaluation in Education, mainstreaming in North Cyprus.

Introduction

Individuals with special needs are defined as people with different needs compared with their peers in terms of all developmental characteristics (Hornby, 2015; Sagiroglu and Uzunboylu, 2018). Inclusion refers to the special inclusion of children with special needs in the education and training of class peers with normal development. In other words, it is the process of facilitating more constructive psycho-social relations of children with special needs (Zagona, Kurth and MacFarland, 2017). The main purpose of mainstreaming education is that individuals with special needs receive education with their normal peers who do not need special education. Mainstreaming education is carried out full-time and part-time. Part-time mainstreaming is carried out by individuals with special needs in some classes with their peers in or out of the classroom. All of the individual's needs should be taken into consideration when planning part-time and full-time mainstreaming education (Batu, 2000; Delubom, Marongwe and Buka, 2020). Today, with the advances in the education system, it is possible to meet all of the educational needs of individuals with special needs and for them to receive education together with their peers through mainstreaming education (Forlin et al. 2009; Oncul, 2003; Coskun, Gur and Aykutlu, 2014). When individuals with disabilities are educated in the same environment with their peers, it is observed that their learning speeds increase in the academic and social sense and their communication skills are positively affected by observing and imitating their peers. It is also emphasized that when they are accepted by their peers in the school environment, they become more confident in society. According to the literature, when the academic development between the children attending special education institution and the children attending mainstreaming class is compared, it can be said that the academic development of those studying in mainstreaming environments is faster (Anilan and Kayacan, 2015; Gavish, 2017).

In order to benefit the individuals with special needs in inclusion education, it is important to make the education environment of the children with special needs suitable and to provide the materials in the support education class when necessary (Gavish, 2017; Anilan and Kayacan, 2015). Research shows

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that the personal characteristics of teachers affect their teaching. Teachers' intelligence, tolerance, proper communication skills, professional background and field knowledge determines the success of their teaching. Therefore, research on teacher behavior has increased (Wenglinsky, 2000; Cochran-Smith, 2001). Research has shown that when teachers have positive attitudes towards mainstreaming, they can easily adapt to meet the learning needs of mainstreaming students (Elsayed and Salama, 2020). Consequently, teachers having sufficient knowledge and skills is an important factor in the development of positive attitudes towards mainstreaming education (Voltz, Brazil and Ford, 2008; Orel, Zerey and Toret 2004). In the study conducted by Gozun and Yikmis (2004), it was concluded that classroom teachers receiving inclusion education were more favorable to inclusion education practices than classroom teachers not receiving education.

The most important factor in the successful implementation and execution of mainstreaming is classroom teachers (Sabayleh and Alramamneh, 2020). Teachers should be willing and positive about their duties in mainstreaming education. Classroom teachers, who have children with special needs in their class, individualize and evaluate the teaching considering the differences of students with special needs. Within this framework, families work in cooperation with related institutions and organizations (Sucuoglu and Akalin 2010). It is especially important for teachers to accept their students with special needs, get to know them well and approach them selflessly. Individualized education programs should be prepared for the students with special needs and correct evaluations should be performed by teaching according to the interests and abilities of the students. The physical structure of the classroom, which is the in-class arrangement, should be organized according to the child and appropriate materials should be prepared for the lesson. Class teachers should work in collaboration with other teachers (Ozkan and Tokel, 2020). Acceptance of students with special needs in the classroom by their peers depends on the peer information to be made by the class teacher and the preparation of the class for mainstreaming education (Guleryuz, 2009).

The knowledge of the personnel involved in mainstreaming education is generally limited (Aravind and Refugio, 2019). For this reason, classroom teachers have particular difficulties in providing successful education in inclusion education. (Anilan and Kayacan, 2015). In-service trainings should be organized, and classroom teachers should be provided with information about special education. Teachers need to understand the type of disability of the child well and make classroom arrangements, instructional adaptation and evaluation accordingly. It is especially important that teachers are willing, patient and selfless in the mainstreaming process (Anilan and Kayacan, 2015; Sahin, 2010). Vural and Yikmis (2008) emphasized that the instructional practices in inclusion practices are of great importance for the achievement of the desired success in the education of students with special needs. Therefore, classroom teachers have a significant role in the teaching and evaluation phase of inclusion practices. In addition, in terms of children with normal development, their behaviors such as respect, help, tolerance and understanding are positively affected by receiving education with their peers with special needs. Class teachers should prepare programs according to the interests and abilities of the students and increase the interaction of the students by organizing in-class activities (Gul and Vuran, 2015). Jacob and Olisaemeka (2016) listed the most important factors of inclusion in their study as preparing programs to meet the needs of the students, adapting teaching, using teaching methods and techniques that the student will understand and providing support education services. Looking at the research that reveal the problems that classroom teachers experience with regard to teaching practices in mainstreaming practices, we can say that teachers use different materials for the students with special needs during the lesson and explain the information to be given in the simplest form, yet they still need support in the process of instructional adaptation and evaluation (Sadioglu, 2011).

It is necessary to make adaptations to the course contents and class order for students with special needs who receive inclusion education (Taspinar, 2019). Appropriate materials that consider the special needs of the students and are in accordance with the courses planned should be used. In order for inclusion education to be successful, classroom teachers should be equipped with instructional practice and evaluation (Olcay-Gul, 2014; Shaw, 2011). If the physical structure of the classroom, materials used in teaching, adaptations in instructional practices and assessment are not suitable according to the individual's disability status, interests and skills, inclusion education will not have a positive effect on the individual (Pliner and Johnson, 2004; Uzunboylu, 2019). It should be noted that different materials that appeal to different senses and different methods, such as cooperative learning, learning by discovery and direct instruction, should be used besides the plain narrative method in the classrooms where students receive mainstreaming education, as they have different needs as well as development and learning characteristics and therefore cannot benefit equally from the uniform education offered to them. Peer support and teaching must be included in the teaching and learning processes (Gul and Vuran, 2015;

Evans et al., 2010).

When working with students with special needs, assignments should be given according to the development of the students based on their in-class situation, and the assessment should be made in accordance with the student's interests and abilities, and most importantly, the deficiency rate (Zeff, 2007). When we examine the studies carried out with classroom teachers regarding mainstreaming education, we see that in-service training for special education field knowledge is of great importance for positive opinions and effective education according to the opinions of classroom teachers about the mainstreaming practice (Demir and Acar 2010; Ozaydin and Colak 2011; Calisoglu and Tanisir, 2018). As a result of some research, it was found that there are negativities related to inclusion. It was concluded that mainstreaming education could not be realized as desired due to reasons such as the physical structure of the school and the unsuitable class size, the unequal distribution of inclusion students to the classes, the demands of the classroom teachers not being met, insufficient material support, and insufficient in-service trainings despite the fact that the teachers received assistance from the training support teachers (Sarac and Colak 2012; Guzel 2014; Yaman 2017). When the studies were examined in general, it was found that classroom teachers emphasized that they did not find themselves sufficient about inclusion education, that support education services and material support were not provided, and that they wanted to improve themselves in relation to the education of students with special needs but they did not receive education support in this sense (Dagli and Oznacar, 2015; Germano, Brito and Capellini, 2017; Sardohan and Akcamete, 2018; Bayrakli and Sucuoglu, 2018). In order to be effective in mainstreaming education, it is of great importance to determine the actions of classroom teachers regarding instructional practice and evaluation, and to take necessary precautions and to provide the necessary support in this area. The aim of this research is to determine what primary school teachers who work in mainstreaming schools in the TRNC and who are mainstreaming students in their classroom do with regard to instructional and evaluation practices.

Materials and Methods

The qualitative research method was used in order to determine what teachers do in terms of instructional practice and evaluation in mainstreaming practices. The information collected by the qualitative research technique varies. Data obtained from this approach can be in the form of observation notes, interview records, documents, pictures and other forms. The interview method was also used in this study. The interview technique is divided into structured, semi-structured and unstructured. As a data collection tool, a semi-structured interview form was developed by the researchers. In the semi-structured interview technique, questions were asked to the interviewees in a systematic order and the participants were allowed to answer freely (Buyukozturk et al., 2017). The first version of the form used in the study was open-ended, consisting of ten questions: six questions about patterning and practicing instruction and four questions about evaluating the effectiveness of instruction.

Study Group

This study was carried out to determine the activities of classroom teachers with mainstreaming students working in primary schools about instructional practice and evaluation in mainstreaming practices. In this research, data was collected by interviewing teachers who worked in primary schools with mainstreaming students in their classes. The study group of this research consists of 12 mainstreaming class teachers working in primary schools with resource rooms in accordance with the permission obtained from the TRNC Ministry of National Education.

Demographic Information on Teachers

Table 1 shows the gender, age, and seniority information of the teachers in the research, whether the teachers had received mainstreaming education, the period for which they had worked in the mainstreaming class and the faculties from which they had graduated. Alphabetical codes were assigned to each of the teachers participating in the research.

Table 1
Demographic Information on Teachers

The Code of the Teacher	Gender	Age	Seniority	Received Mainstreaming Training before	How Long He/She Had Been Working with the Inclusion Class	Faculty
A	Female	26-30	0-5	Yes	0-5 years	Teacher Academy
B	Female	26-30	6 – 10	Yes	0-5 years	Teacher Academy
C	Male	41 and above	16-20	Yes	6-10 years	Teacher Academy
D	Female	31-35	11-15	Yes	11-15 years	Teacher Academy
E	Female	41 and above	21 and above	No	21 years and above	Faculty of Education
F	Female	36-40	16-20	Yes	0-5 years	Teacher Academy
G	Female	36-40	11-15	No	0-5 years	Faculty of Education
H	Female	41 and above	16-20	No	11-15 years	Faculty of Education
I	Male	41 and above	16–20	No	0-5 years	Teacher Academy
K	Female	36-40	16-20	No	0-5 years	Teacher Academy
L	Female	31-35	6-10	Yes	0-5 years	Teacher Academy
M	Male	41 and above	16-20	Yes	0-5 years	Teacher Academy

Data Collection

In this study, the data was collected by using the semi-structured interview method, which is one of the qualitative data collection techniques. An interview form consisting of ten questions was used in order to determine the activities of the classroom teachers with mainstreaming students towards instructional practice and evaluation. The questions are as follows:

- (1) What are the adaptations that teachers make in teaching methods and activities in line with the educational needs of students with special needs?
- (2) What measures are taken by teachers to facilitate the interaction of students with special needs with other students?
- (3) What kind of materials do teachers prepare for students with special needs?
- (4) What kind of support did the teachers receive regarding the teaching of students with special needs and what do they do about this subject?
- (5) What are the problems that classroom teachers experience in designing and implementing instruction in mainstreaming and what do they do to overcome these problems?
- (6) What do classroom teachers do to improve their skills in designing and applying instruction in mainstreaming?

To evaluate the effectiveness of teaching:

- (1) What do the classroom teachers do with regard to evaluating the effectiveness of the instruction they perform with the students with special needs in mainstreaming?
- (2) What do the classroom teachers do during the mainstreaming process to share the evaluation results with the special needs student, their family and other staff working with the student?
- (3) What do the classroom teachers do with the evaluation results in the mainstreaming practice when determining the educational objectives?
- (4) What do classroom teachers do to improve their skills in assessing teaching effectiveness?

The interview questions were asked to the participants according to the determined order and if the answer to a subsequent question was given while answering that question, it was not asked again.

During the interview, any part of the questions that the teachers did not understand was explained. The explanation was done in a way that prevented the interviewer from shoving a particular idea that could cause the interviewee to give an expected response. In the following parts of the study, the names of the teachers who participated in the interview have been coded for ethical reasons.

Data Analysis

The sound recordings collected for the research were written on papers and every word heard during this casting was transferred to the computer verbatim. After the recordings were transferred and edited, each line was given a number and the sound recordings were listened to again and compared with the transferred text in order to check the accuracy of the data. A total of 20 pages were obtained from the data gathered from all the interviews. In order to encode the data, data with meaning integrity was determined and a coding list was obtained. The data showing meaningful equality were themed. The themes were presented in percentages and frequency tables and shared in the findings section. In the process of data analysis, codes and themes were interpreted in a comprehensible language and the results were determined.

Validity and Reliability

In this study, the opinions of two experts were taken for the interview questions that were firstly prepared within the scope of the validity and reliability studies, then a pilot scheme was applied with the interview questions and the questions were finalized. Subsequently, the researcher asked all questions in the same order with the same sentences during each interview and the data were collected by recording the sound. The data transferred from the audio recording was transferred to a computer and then transcribed. For the reliability of this document, an expert instructor wrote a randomly selected audio recording. The obtained documents were compared with each other and the reliability study was conducted. Subsequently, expert opinion was continually received during the coding and thematization of the data and finalized.

Results

The Views of Classroom Teachers on Designing and Practicing Teaching for Mainstreaming Students

Primary school teachers were asked six questions in order to determine their views on “Designing and Practicing Instruction for Mainstreaming Students” and the answers given to these questions are explained below.

The views of teachers regarding the question “What kind of adaptations do you make in the teaching methods and activities in line with the educational needs of the students with Special Needs?” were as follows:

Table 2

Teachers’ Views on Adaptations Made in Teaching Methods and Activities

Teachers’ Views	f	%
I seat my student at my desk or in the front row	4	25
I use visual materials prepared by a support education teacher or prepared by myself.	4	25
By giving different tasks to other children in the classroom, I can give one-to-one education to the student with special needs.	2	12.5
As the class is crowded, I cannot allocate time to my special needs’ student during class hours.	2	12.5
He/she develops his/her academic skills with the help of a special education teacher or in a special education center.	2	12.5
I do not prepare a different activity during my course for students with special needs	2	12.5
Total	16	100

When the answers of the class teachers to the questions asked about what they do in the teaching methods and activities of the students attending mainstreaming education are examined, it can be

concluded that unlike the other students, mainstreaming students sit in the front row or at the teacher's desk, the teachers give different tasks to other students in the classroom in order to take care of the students with special needs. Teachers make use of the visual materials prepared by the support education teacher and themselves, and that they direct the student to the special education teacher in their academic classes because of the crowded class size.

Teachers' views about the question "What measures do you take to facilitate the interaction between the student with special needs and other students?" were as follows:

Table 3
Teachers' Views on the Measures Taken to Facilitate Interaction with Other Students

Teachers' Views	f	%
I organize group activities and events to facilitate the interaction between students with special needs and other students	7	35
At the beginning of the semester, I inform the peers about the students with special needs.	6	30
I ask my special needs student to sit with friends with whom he/she has a good understanding	2	10
He/she does not adapt and does not participate in the courses that he/she fails or finds difficult.	2	10
I give tasks to the students with special needs in class	2	10
I do not do anything additional for my students with special needs in terms of interacting with their friends	1	5
Total	20	100

In the question posed to the classroom teachers to determine what they do to facilitate the interaction between the students with special needs and their peers, it was observed that group activities were conducted, some teachers informed their students about the status of the students with special needs at the beginning of the semester, some teachers gave certain tasks to their mainstreaming students and others encouraged the students with special needs to collaborate with other students with whom they could easily understand. In addition, it was concluded that some teachers did not implement any practices in order to integrate the students.

Teacher opinions about the question "What kind of materials do you prepare for students with special needs?" were as follows:

Table 4
Teachers' Views about Materials Prepared for Students with Special Needs

Teachers' Views	f	%
Apart from the textbooks related to the course, I make use of the materials I prepared myself.	5	33.4
I usually use textbooks; I do not prepare any extra material	3	20
I use the material prepared by the special education teacher	3	20
I request lesson material from the family	2	13.4
We use materials from other private educational institutions	1	6.6
I take advantage of technology	1	6.6
Total	15	100

Looking at the answers to the question "what kind of materials do you prepare for the students with special needs?" that was directed to the classroom teachers, it was concluded that they provided education independent from the textbooks. They brought the materials from other special education institutions, they demanded the materials from the families, they benefited from the materials prepared by the special education teacher and themselves and that they also benefited from the technology. The answer "I do not use any additional material other than general textbooks" was also found among the findings. However, in general, the teachers stated that they found solutions for the material themselves and that the Ministry of National Education does not provide material support within the scope of inclusion.

The views of teachers regarding the question "What kind of support do you receive regarding the teaching of special needs students directed to classroom teachers? What do you do about this?" were as follows:

Table 5
Teachers' Views Regarding Support Received During Teaching

Teachers' Views	F	%
We receive expert support from a special education teacher in our school	12	66.6
I do research about special education department (internet, books etc.).	4	22.2
We cooperate with families	1	5.6
We exchange ideas with other mainstreaming teachers.	1	5.6
Total	18	100

Looking at the answers to the question "what kind of support do you receive regarding the teaching of special needs students?" directed to the classroom teachers, it was concluded that they received the greatest help from the special education teachers in their schools, they exchanged information with other mainstream teachers, and they developed themselves by conducting research about the special education area.

The views of teachers regarding the question "What do you experience in designing and practicing instruction directed to classroom teachers? What would you suggest overcoming them?" were as follows:

Table 6
Teachers' Views about the Teaching and Design

Teachers' Views	f	%
I receive the support of a special education teacher in the design and application of teaching	5	33.3
I do research and practice according to the interests and abilities of the child during the design and application phase of the teaching (Internet, books, etc.).	5	33.3
When I have difficulty, I take special care of the student	2	13.4
I do not make any additional applications for the student	2	13.4
I do not have any problems in designing and applying teaching	1	6.6
Total	15	100

Looking at the answers to the questions posed to the teachers in order to determine what they have experienced in designing and practicing instruction, they stated that they obtained special results in cases where they worked in cooperation with special education teachers, conducted research according to the interests and abilities of the child, and were challenged in teaching. In addition, there were teachers who said that they did not have any difficulties in designing the teaching method and did not make any additional applications in this regard.

Teachers' views on the question of "What do you do to increase your skills in designing and practicing teaching?" were as follows:

Table 7
Teachers' Views Regarding Support Received for Designing and Implementing Teaching

Teachers' Views	f	%
I get help from a special education teacher	7	41.2
I develop myself by doing research	7	41.2
I attend courses provided by the Ministry of Education	3	17.6
Total	17	100

Looking at the answers to the questions posed to the teachers in order to determine what they are doing in order to increase their skills in designing and practicing instruction, it was determined that they received help from the special education teacher in the school, they developed themselves by doing research about the special education field and they participated in the courses offered by the Ministry of Education within the scope of in-service trainings.

To evaluate the effectiveness of teaching

Four questions were asked to the classroom teachers to determine their views on “Evaluating the Effectiveness of Teaching” and the answers given to these questions are explained below.

Teacher’s opinions about the question “How do you evaluate the effectiveness of your teaching with special needs students?” were as follows:

Table 8
Teachers’ Opinions on Evaluating the Effectiveness of Teaching

Teachers’ Views	f	%
Unlike other peers in the classroom, I evaluate my mainstreaming students at their own level.	9	75
Special education teacher makes the assessment	2	16.6
I do not make a different assessment	1	8.4
Total	12	100

When the answers given by the classroom teachers in terms of evaluating the effectiveness of teaching were examined, it was found that, unlike other peers in their classrooms, they evaluated inclusion students according to their level, interest and ability. In addition to this, it was observed that there were teachers who did not use a different assessment method, as well as schools where special education teachers conducted the evaluation.

Teacher opinions about the question “What do you do in terms of sharing the evaluation results with the special needs student herself/himself, her/his family and other staff working with the student?” were as follows:

Table 9
Teachers’ Views about Notifying the Student, Family and Other Personnel Working with Students with Special Needs About the Assessment Results

Teachers’ Views	f	%
We inform family, special education teachers and administrators through daily, weekly and annual meetings.	11	91.6
We put labels and icons on the studies and make notes.	1	8.4
Total	12	100

With regard to the classroom teachers notifying the student himself / herself, his / her family and other staff working with the student about the evaluation results, it is concluded that they provide continuous information about the child’s situation through daily, weekly and annual meetings, and they also put labels and symbols on the studies and provide feedback by taking notes.

Teachers’ opinions about the question “How do you use the evaluation results to determine the educational objectives?” were as follows:

Table10
Teachers’ Views on Using Evaluation Results in Determining Educational Objectives

Teachers’ Views	f	%
If the desired success is achieved as a result of the assessment, we move on to the next level. If the achievement level does not reach the desired target, we do the same subject with different teaching methods.	11	91.6
I use the results of the evaluation to see if the reinforcers are effective.	1	8.4
Total	12	100

When the answers given by the classroom teachers about how they used the evaluation results to determine the educational goals were examined, it was concluded that if the desired achievement level was reached after the evaluation they continued with the next level, but if the achievement level was not reached, the teaching was repeated by using different teaching methods and materials.

Teachers’ views on the question “What do you do to increase your skills in assessing the effectiveness of teaching?” were as follows:

According to the answers given to the question pertaining to what classroom teachers were doing to increase their skills in evaluating the effectiveness of teaching, it was concluded that they read special education books, got help from special education teachers, did research on the internet and participated in courses opened by the Ministry of Education.

Table 11
Teachers' Views on What to Do to Increase Skills for Evaluating the Effectiveness of Teaching

Teachers' Views	f	%
I attend the courses offered by the Ministry of Education.	5	38.46
I get support from our special education teachers.	3	23.08
I read special education books; I participate in courses offered by the Ministry.	2	15.38
I am not doing anything extra.	2	15.38
I browse the internet.	1	7.7
Total	13	100

Discussion

When the answers given by the mainstreaming class teachers regarding the teaching methods and activities of the students are examined, it can be seen that the teachers providing one-on-one support to the students with special needs. Some of the teachers are unable to allocate additional time to the students due to the crowded class size and therefore the students with special needs are directed to the special education teacher in their schools. Harvey et al., (2010) concluded that in-service training may be the most appropriate solution to address the concerns of educators and change negative attitudes about mainstreaming education. In this respect, it should be ensured that classroom teachers develop themselves by participating in the necessary trainings (Sahamkhadam, 2020). In the study conducted by Sarac and Colak (2012), it was concluded that classroom teachers providing inclusion education received help from other staff in the school and that they did not receive adequate training in spite of the fact that they wanted to improve themselves. Due to the lack of a special education law in the TRNC, the infrastructure required for inclusion education is insufficient. The greatest deficiency is the lack of knowledge of classroom teachers who provide education in mainstreaming classes for students with special needs and a lack of in-service trainings on this issue. Excessive class size, lack of material support and lack of awareness among families can also be considered as negative factors (Erden, 2016).

According to peer information studies in mainstreaming education, normally developing peers have a more positive attitude towards students with special needs and make it easier to accept the situation of mainstreaming students (Krahe and Altwasser, 2006). In-class and out-of-class activities, other than academic courses, were found to have a positive effect on improving the communication between average children and special needs children. Through these activities, we can say that mainstreaming students and their normal peers interact and collaborate. (Gavish, 2017; Sadioglu, Batu and Bilgin, 2012). It is thought that classroom teachers working in mainstreaming class should receive support services in order to develop themselves in collaboration with experts and these services will positively affect mainstreaming education (Batu, 2000). In their study, Sarac and Colak (2012) stated that classroom teachers could not find the necessary support within the scope of inclusion and that their demands were not taken into consideration in terms of the problems they experienced, the physical conditions of the inclusion classes were not sufficient for the children, and that this support was inadequate although the classroom teachers cooperated with other staff. In a study conducted by Babaoglan and Yilmaz (2010), teachers stated that teachers who do not have the necessary knowledge about special education have difficulty in establishing a classroom authority and that teachers also have difficulties in the absence of the necessary support education services.

In mainstreaming classes, the lack of instructional adaptation by teachers, lack of acceptance by peers in children with special needs, and lack of legal deficiencies lead to major problems during the evaluation of mainstreaming students (Anilan and Kayacan, 2015). In order to develop a new teaching strategy, it is necessary to share the results of the evaluation with the family and other staff (Aytac, Demirbas-Celik and Kiracioglu, 2019). Accurate assessment of teaching and keeping results regularly are important in the context of making the right decisions in the transition to the next teaching period (Sahin, 2010). Classroom teachers with mainstreaming students in the classroom should be well equipped in the

evaluation phase of the teaching as well as the adaptation stage (Sahamkhadam, 2020).

Limitations and recommendations for further research

From this point of view, in-service trainings should be provided to classroom teachers who provide mainstreaming education in schools where mainstreaming education is applied. Material support should be provided to schools where mainstreaming education is provided in primary schools. Appropriate distribution of mainstreaming students by supervising class sizes will positively affect mainstreaming education in primary schools. If we examine the obtained results from this qualitative study conducted with primary school teachers working in mainstreaming classes, in-service teacher training can be conducted and teachers' opinions and competences of pre-training and post-training can be compared. Within the scope of mainstreaming, research can be developed by conducting studies with school principals, education support teachers and families.

Conclusion

When the answers of the mainstreaming class teachers in the teaching methods and activities of the students are examined, the results of the research show that, the teachers seat their mainstreaming students in the front row or at the teachers' desks, giving different tasks to the other students in the classroom for giving one-on-one support to the students with special needs, In addition to the fact that they use visual materials, some of the teachers cannot allocate additional time to the students due to the crowded class size and therefore the students with special needs are directed to the special education teacher in their schools. Cankaya and Korkmaz (2012) stated that classroom teachers had physical deficiencies in mainstreaming education practices, and they found it difficult to find the materials to be used in the course. The teacher should be well equipped in terms of student motivation, gaining family support, adaptation of the students to the class and applying effective education methods (Sahamkhadam, 2020). When the answers given by the classroom teachers in terms of evaluating the effectiveness of teaching were examined, it was found that, unlike other peers in their classrooms, they evaluated inclusion students according to their level, interest and ability. In addition to this, it was observed that there were teachers who did not use a different assessment method. In addition to making educational adaptations in mainstreaming education, it is of great importance that appropriate conditions are provided for the students with special needs and to make the necessary arrangements during the evaluation phase of the education (Zeff, 2007; Aytac, 2020).

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Conflict of interests

The authors declare no conflict of interest.

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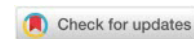
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Professionalization of The Principal's Role

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Abstract: The aim of this work is to point out the importance of the professionalization of the principal's role in education institutions, with an accent on preschool institutions. The sample included principals (N=57) of preschool institutions in Central Croatia. The goal was to test the mediation relationship through SEM and examine the direct influence of interpersonal relationships within the preschool institution on the development of its work quality; furthermore, to test the indirect influence of these relationships by introducing the mediation variable of professional competence. The structured modelling in the AMOS was applied for testing the direct and indirect influence. The contribution of interpersonal relationships on the work quality is high and statistically significant ($\beta=0,920$), which confirms the direct influence. For testing the mediation effects, a bootstrapping method was designed that confirmed the indirect influence of interpersonal relationships on the work quality with the statistically significant serial mediator of professional competence ($p= 0,016$), thereby confirming partial mediation. This research determined that positive interpersonal relations, mediated by the principal's professional competence, have a positive effect on the work quality of a preschool institution. In order for preschool institutions to reach the desired quality, it is necessary for them to be managed by professionally empowered and expert principals who promote prime cooperative relationships as the starting point in developing a high-quality institution. The results of this research contribute to a clearer perception and understanding of the professionalization of the principal's role through key areas of his/her work and activity, and the possibility of their practical implementation into education institutions.

Keywords: professionalization, principals, preschool institutions, professional competences, structural modelling.

Introduction

The role of the principal is key in the process of development and work quality of the preschool institution and its stakeholders. In order for a preschool institution to successfully thrive and realise its developmental potential, the principal's competences are of crucial importance because only expert and competent principal, together with his/her co-workers, has the possibility to realise the basic tasks in the field of early and preschool education (Kokanović, 2021). Since early development and learning of children is considered particularly significant for the development of a stable personality, it is key that the first institution children are involved in is directed toward high-quality work improvement. This research indicates the need for the professionalization of the principal's role in Croatia and aims to contribute to understanding and determining the professional role and function of the principal in realizing high-quality preschool institutions. Numerous European documents that prescribe the guidelines for national educational policies (European Council, 2009) point to the significance of quality leadership of education institutions. Moreover, OECD (2005) and ETUCE (2008) prescribe competences needed for the organisational component of the institution, which imply the skills for developing positive cooperation and partnerships, teamwork, and successful management and leadership of the institution itself. The documents accentuate skills of deliberation and self-reflection, assuming responsibility for one's own professional development and of other participants, and the competences required for creating educational policies and introducing innovation in the educational practice. In order to set a clear competence frame necessary for successful management of a preschool institution, regulating the principal's role from a function into a profession is required. As recommendations for the principals' professionalization, Hallinger and Snidvongs (2005, acc. to Staničić, 2006) single out the following key criteria to be fulfilled: fundamental knowledge and skills, continuous lifelong learning and ensuring permanent support in the course of heading educational institutions. The professionalization requires continuous lifelong learning in order for the principals to keep

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up with the contemporary insight into the work and efficiently manage preschool institutions. Croatia is one of the rare countries without a regulated system of education and professional training for principals, so those who are not ready or qualified take on this role and are in most cases left to their own devices and/or opportunities for professional development. According to many authors, successful management of educational institutions guarantees positive development of the overall process, therein the education system (Caldwell, 2005; Rood, 2006; Leithwood and Day, 2007; Hersey, Blanchard and Johnson, 2008; Grint and Holt, 2011; Fullan, 2011; Earley and Greany, 2017). Therefore, the professionalization of principals should become an imperative to all the countries aiming to establish quality in this part of the system. The standards of the occupation, qualifications and licencing should be a point of departure for the professionalization of the principal's role through educational policies. In 2016, the Ministry of Science and Education of the Republic of Croatia has made public the conceptualised relevant documents, devised by an expert work group, that define the criteria and guidelines for the professionalization of preschool institutions' principals. However, apart from the conceptualisation, further development in this regard did not happen. The education standards are key to the professionalization because they define the qualifications and competences required of principals before taking on this role. The standards unambiguously delineate knowledge, abilities, skills and values principals should have (or master) in order to assume this role. Besides, they provide an opportunity to choose proficient experts needed for developing high-quality education institutions.

Professional competences of the principal

The role of the principal is multifold and encompassed by the interdisciplinary area, so it is expected that the principal possesses a wide spectrum of knowledge and skills in order to perform this role successfully. In the document Strategy of education, science and technology (2014), the intention is visible of instating the systematic evaluation of the work of principals, which would also mean securing the adequate education or advancement in order for the principals to be prepared even before assuming this role. Furthermore, systematic evaluation of the principal's work should accordingly be preceded by defining the standards of the occupation and respective qualifications as well as licencing, which is the case in many countries (England, USA, New Zealand, Australia, etc.), but not in Croatia. Bearing in mind the guidelines from Council Recommendation on Key Competences for Lifelong Learning (2018), it is a duty and obligation of every state to secure all the conditions and resources for quality education, wherein the opportunity for the inclusion of education workers in various forms of professional training so they can continuously excel their professional competences. The principal's role is complex and, as stated by the European Commission (2012, acc. to Kokanović, 2021), its influence on defining and determining the quality of an education institution is the most prominent; therefore, it is necessary to dedicate great attention to the professionalization of this role. Isto singles out some areas in which the principals participate every day as key for developing quality preschool institutions, from designing the joint vision and mission, shaping the curricula and educational process, securing all the conditions for the realisation of the process, to developing partner relations and professional growth of all participants (ibid, 2021). It is particularly significant that the principal is able to provide support, motivate cooperative relations within the institution, create a learning community together with the co-workers based on trust and mutual respect, generate new insight and knowledge and incorporate them in the educational practice itself. The principals are responsible for and obliged to assume the leading role in creating the learning community by designing and securing the conditions and resources for the professional training and learning of all participants in the institutions they head (Matsumura, Garnier and Resnick, 2010; Snyder et al. 2011). It is expected of the principal to be skilful and able to assess the wide spectrum of characteristics contributing to promoting quality practice, so it is unquestionable that this person must be professionally aware and competent for responding to all the challenges encountered in everyday work. It ensues from the aforementioned that educational policies of each state are obliged to provide the conditions for developing and empowering the professional competences upon the completion of initial education, starting from defining the standards and programmes that will secure systematic and continuous lifelong learning. In order for the principals to ensure all these conditions and create opportunities for learning and development within their institutions, it is key that they themselves are professionally competent in all areas of their activity and work. Hence, there is no doubt that the professionalization of her/his role is an exceptionally significant process that should become the priority activity for the designers of educational policy of each state that strives for a quality education system. The fact that Croatia does not have a defined nor systematic education standard for principals is a worrying piece of information that places principals and education institutions in a bad position where quality and continuous advancement can hardly be expected.

The quality of the preschool institution's work

The quality of preschool institutions is determined by various factors. Cultural determination of the quality may assume the leading position in defining the concept itself. Having in mind the fact that a person's identity encompasses values, beliefs, experiences, knowledge and action, it can be said that the social context in which a person exists is formed on those principals. The quality perceived in a surrounding and social context does not necessarily need to entail the same characteristics in some other context, nor be equally perceived. Preschool institutions are expected to achieve the consensus of certain factors in the education system in order to realise the planned outcomes of joint educational activity. When we speak of the preschool institution's quality, it is a given (or should be) that it is not static nor constant, but a developmental component that requires systematic and continuous work to promote its sustainability. The fundamental starting point for developing quality preschool institutions should have its stronghold in understanding and perceiving the child, for whom the environment is created in the first place. If a child is perceived as a competent, active, reflexive, curious and intelligent being, the provision of quality education will become our imperative and guide in creating and developing as quality preschool institutions as possible. By considering scientific insight about learning and development, numerous authors (Sekulić-Majurec, 1997; Gopnik et al., 2003; Mlinarević, 2004; Rinaldi, 2006; Dahlberg and Moss, 2006; Miljak, 2009; Jurčević-Lozančić, 2011; Slunjski, 2006; 2008; 2011; 2018) suggest the direction in forming quality, incentive environment in order for the child to develop his/her potentials. Hence, the role of a high-quality preschool institution in the child's development is indisputable. The contemporary view on the child as an active and competent participant and (co)creator of the education process requires a surrounding and conditions for nourishing all his/her potentials. The inclusion in early and preschool education positively affects and brings advantages not only to an individual but also to the overall society (Vandenbroeck et al, 2017) with regard to better educational achievement, the results on the labour market and overall more connected and inclusive societies. Furthermore, the inclusion in the quality early and preschool system is considered a key factor in decreasing the dropout rate (European Commission, 2014), and only high-quality inclusive services which are not costly bring welfare to individuals, while low-quality systems have a negative effect on the development of children and societies as a whole (Melhuish et al., 2015). Crucial bearers of changes and improvement of the institution's work quality are foremost its participants who can detect the strong and weak suits in their everyday work, whereby they contribute to the planned and systematic improvement. The development of a learning community should be initiated by continuous reflection, discussion and joint (co)operation of all its stakeholders.

Cooperative relationships within the preschool institution

The quality of life in a preschool institution greatly depends on interpersonal relationships of all employees. Peterson (2002) states with a metaphoric expression that if an institution is to be nourished with heart, soul and spirit, as children deserve, then it is necessary to invest constantly in all the segments leading to this goal. Once achieved, the quality within the institution needs to be cultivated and empowered in order to develop the institution according to the set goals. Quality relationships, successfully realised cooperation and teamwork are the elements that reflect a well-developed culture of an institution. Vujičić (2011) emphasises that the institution's culture is reflected in interpersonal relationships of all participants, their joint work, institution's management, organisational and physical surrounding and professional development of its workers through exploration of one's own education practice with the goal of its improvement. In such a way, an institution has a powerful leverage for starting self-organising processes, i.e. the ability and opportunity to change and develop. The principal is key in developing cooperative culture and quality human relationships in the institution. If he/she shows care and understanding for all the participants, encourages forming the vision, promotes and lives the aspiring values, there is a great possibility that other relevant actors will do the same. Fullan (1993) stresses the importance of collegial relationships inside the institutions because they are the basis for promoting successful social interactions amongst all participants. It is important to emphasise that thriving cooperative relations need to be developed among all participants in the education process, within the institution as well as with external factors. A preschool institution striving toward developing a learning community provides the child with a sense of belonging, positively affects all the aspects of his/her development, and with that a feeling of togetherness and acceptance is created in the long run. The children who grow up in supporting communities ruled by an atmosphere of cooperative culture, warm and caring relationships and mutual respect and appreciation will themselves feel they can contribute to its functioning and development. In such a way, children will learn experientially about democratic values directly from their environment, which will exude a significant positive effect on their overall development. Therein, institutions that promote such values indisputably develop their own quality. Quality cooperative relationships contribute to empowering team work, joint

reflection and analysing one's own practice, thereby personal and professional growth and development of all participants. Quality cooperative relationships are the foundation for excelling the quality of the institution itself. [Slunjski \(2008\)](#) states the need to create an atmosphere that would motivate collective inquiry, preceded by mutual trust and respect of all participants (preschool teachers, expert associates, principals and other employees). In order for the dialogue culture to thrive, all stakeholders foremost need to be in an equal position, have the liberty and autonomy in making decisions, a pronounced sense of responsibility and belonging because in such a way the collective identity will be enforced, leading to the improvement of quality cooperative relationships. We can conclude from the aforementioned that the role of the principal is crucial in this segment too because, if he/she has a goal of establishing such relationships within the institution and strives toward appreciative, equal communication, then the results will follow. Therefore, professional competences of the principal as the institution's leader and realised quality cooperative relationships are the point of departure for promoting preschool institution's work quality; hence, the focus of this research is placed on examining these issues.

Materials and Methods

The research was implemented for the needs of Kokonaović's doctoral dissertation, amongst the principals of preschool institutions (N=57) in Central Croatia. The data collection was done with the following instruments: Questionnaire on self-assessment of the preschool institution (adopted from [Antulić Majcen, S. and Pribela Hodak, S, 2017](#)), which measures the satisfaction, opinions and views of the employees about the crucial areas of the preschool institution's work quality (institution's strategies, organisational leadership, institution's culture, spatial-material and technical working conditions, curriculum and education process, human resources, cooperation and monitoring and evaluation); Questionnaire for evaluating the relationships in preschool institutions (adopted from [Vujičić and Tambolaš, 2017](#)), which comprises of 21 variables on three subscales (cooperation, autonomy and support); Scale of principals' self-assessment of professional competences (adopted from [Staničić, 2001](#)), which entails 40 variables on 5 subscales (personal, developmental, professional, action and interpersonal or social competence).

The goal of the research was to test the direct/indirect influence of interpersonal relationships within the preschool institution on its work quality and ascertain the influence of professional competence as the mediation variable. According to the set goal, the following hypothesis was set:

H1: It is assumed that interpersonal relationships in the preschool institution influence its work quality by means of professional competence.

Results

The hypothesis was tested via SEM (AMOS), whereby direct and indirect influences were examined. It is a recursive measurement model with two indicators: F1 (three composite variables) and F2 (eight composite variables). Before testing the mediation, the direct influence of the relationship (F1) on the institution's work quality (F2) was tested. The results are presented in Figure 1.

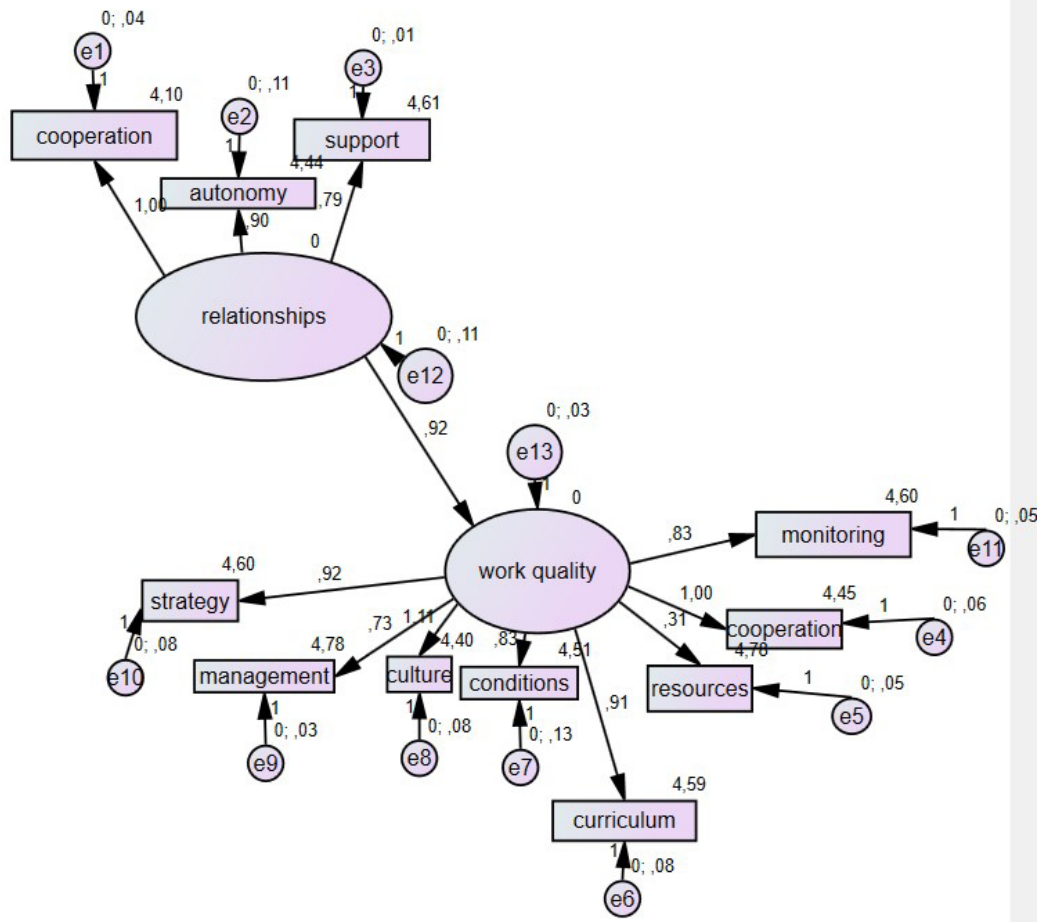


Figure 1. The model of direct influence

The path diagram (Figure 1) presents the unstandardised regression coefficients (betas). The contribution of relationships to work quality is statistically significant ($\beta=0,920$). As assumed, positive interpersonal relationships directly affect the development of the institution's work quality. Table 1 displays the descriptive values of the regression weights.

Table 1
Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
F2	<--	F1	,920	,145	6,321	***	par_10
cooperationRAV_1	<--	F1	1,000				
autonomyRAV_1	<--	F1	,897	,163	5,505	***	par_1
supportRAV_1	<--	F1	,791	,089	8,877	***	par_2
cooperation_1	<--	F2	1,000				
resources_1	<--	F2	,314	,099	3,188	,001	par_3
curriculum_1	<--	F2	,913	,146	6,235	***	par_4
conditions_1	<--	F2	,829	,170	4,863	***	par_5
culture_1	<--	F2	1,107	,163	6,793	***	par_6
management_1	<--	F2	,732	,103	7,100	***	par_7
strategy_1	<--	F2	,919	,152	6,032	***	par_8
monitoring_1	<--	F2	,831	,128	6,497	***	par_9

In accordance with the values from Table 1, the direct influence of relationships on work quality is visible ($\beta = 0,920$). In line with the sign of the regression coefficient, it is concluded that the positive perception of interpersonal relationships leads to the increase of the work quality of a preschool institution. Furthermore, Table 2 presents descriptive values of the standardised regression weights.

Table 2
Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
F2	<---	F1	,875
cooperationRAV_1	<---	F1	,857
autonomyRAV_1	<---	F1	,660
suupportRAV_1	<---	F1	,922
cooperation_1	<---	F2	,808
resources_1	<---	F2	,424
curriculum_1	<---	F2	,751
conditions_1	<---	F2	,616
culture_1	<---	F2	,800
management_1	<---	F2	,826
strategy_1	<---	F2	,732
monitoring_1	<---	F2	,774

In order to examine the mediation role, the mediation latent variable professional competences is introduced into the model (Figure 2).

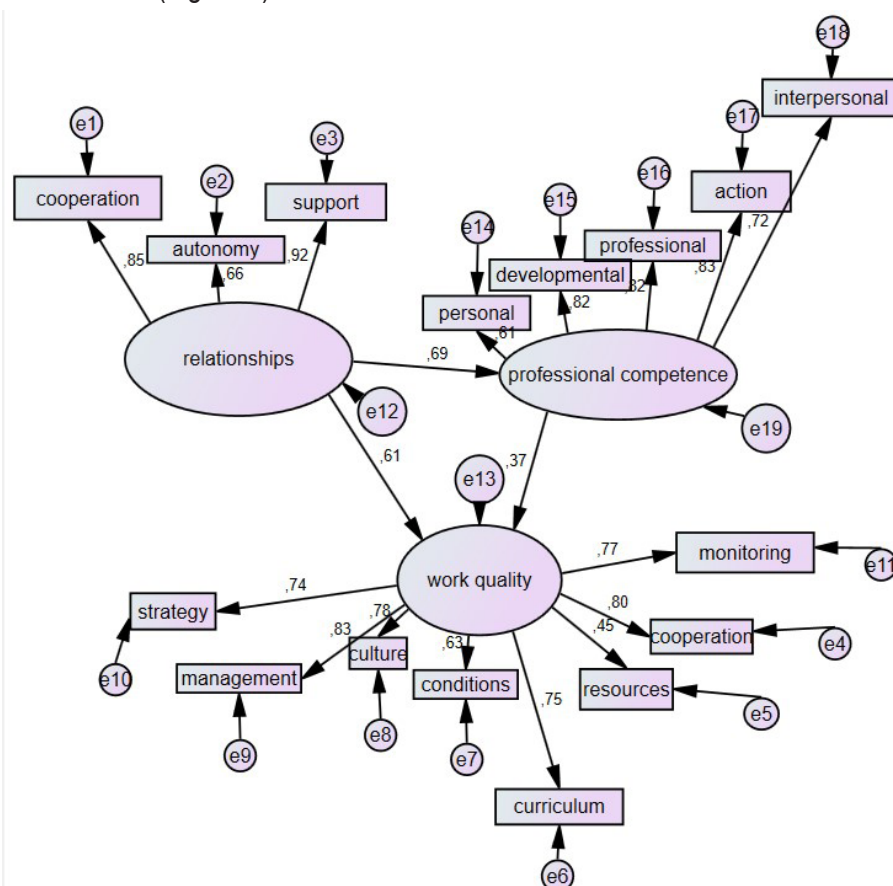


Figure 2. The model of mediation; indirect influence-standardised regression coefficients

Figure 2 presents the mediation model. The values of indirect influence ($\beta=0,269$) indicate the mediation role, i.e. positive interpersonal relationships via the principal's professional competence lead to positive perception of the preschool institution's work quality (Table 3).

Table 3
Standardized Indirect Effects (Group number 1 - Default model)
 Indirect Effects (Group number 1 - Default model)

	F1	F3	F2
F3	,000	,000	,000
F2	,269	,000	,000
interpersonal_1	,588	,000	,000
action_1	,615	,000	,000
professional_1	,568	,000	,000
developmental_1	,723	,000	,000
personal_1	,382	,000	,000
monitoring_1	,764	,590	,000
strategy_1	,853	,659	,000
management_1	,681	,526	,000
culture_1	,999	,771	,000
condition_1	,777	,600	,000
curriculum_1	,841	,649	,000
resources_1	,308	,238	,000
cooperation_1	,913	,705	,000

Further, the statistical significance of the indirect influence ($p=0,016$) is visible in Table 4, which means this testing confirmed partial mediation.

For determining the statistical significance of the mediation effects, the bootstrapping method was used: Two Tailed Significance (BC), showing the indirect influence of interpersonal relationships on the work quality via the mediator of professional competence, which is statistically significant.

Table 4
Indirect Effects - Two Tailed Significance (BC) (Group number 1 - Default model)

	F1	F3	F2
F3	...	...	...
F2	,016	...	...
interpersonal_1	,016	...	...
action_1	,012	...	...
professional_1	,011	...	...
developmental_1	,014	...	...
personal_1	,016	...	...
monitoring_1	,012	,027	...
strategy_1	,012	,024	...
management_1	,018	,024	...
culture_1	,018	,028	...
conditions_1	,007	,017	...
curriculum_1	,008	,032	...
resources_1	,015	,035	...
cooperation_1	,007	,035	...
supportRAV_1	...	...	...
autonomyRAV_1	...	...	...
cooperationRAV_1	...	...	...

After introducing the mediation variable Professional competence, the influence of exogenous variable relationships on endogenous variable work quality was decreased; however, it did not disappear by means of the mediator, but was still statistically significant. The fitness of the model via incremental and parsimony fit indices was not confirmed, although the absolute fit index was at a liminal value (RMSEA=0,10) above which the model is not considered appropriate

Kokanović (2021) established in her work that principals who are deemed professionally competent positively affect the work quality of the preschool institution via their behaviour and relationships within the institution. In this research, the direct influence was examined of the relationships in the preschool institution on the quality of its work, and it was proven as statistically significant. Furthermore, partial mediation was confirmed by introducing professional competence as the mediation variable. Positive interpersonal relationships lead to positive perception of professional competence, whereby contributing to greater work quality of the preschool institution. The principals who strive for a learning community and promote and advocate open and appreciative communication amongst all participants greatly contribute not only to their own but also to professional development of all relevant actors. Preschool institutions that base their practice on quality, reflexive dialogues and discussion indisputably effect positive development of its quality. This confirms the set hypothesis that relationships, via professional competences of the principal, positively affect the work quality of preschool institutions.

Discussion

The hypothesis of this research referred to the possible mediating role of the professional competence of the principal in the relationship between interpersonal relationships and the quality of work of the preschool institution. The analysis used a bootstrapping method (2000 replicate samples) with a

95% confidence interval. The results showed that there is a significant indirect impact of interpersonal relationships on the quality of work of the institution through professional competence ($\beta = 0,269$). This is a partial mediation, because the direct impact of interpersonal relationships on the quality of work after the introduction of professional competence, as a mediator variable, still remains significant ($p = 0,016$). Thus, it can be said that interpersonal relationships are positively related to the quality of work of the preschool institution and that this relationship is partly mediated by the professional competence of the principal. Thus, we confirmed the thesis of the author [Slunjski \(2018\)](#) who believes that the role of a competent director is to encourage and develop interpersonal relationships and staff expertise, which will lead to positive development of the quality of the institution, while incompetent director will passively observe and expect its development. Accordingly, it can be concluded that in preschool institutions in which quality interpersonal relationships are developed, they lead to a more positive perception of the professional competence of the principal, which leads to the development of the quality of work of the institution. Strong interpersonal relationships, which lead to the positive development of the institution, will remain effective even after the director leaves office. A professionally aware principal who shows care and support for strengthening such relationships sees the institution as a testing ground for joint growth and development, creating conditions and opportunities for joint learning and capacity building of employees and then the institution. Accordingly, it can be concluded that in preschool institutions where quality interpersonal relationships are developed, they lead to a more positive perception of the professional competence of the principal, which leads to the development of the quality of the institution's work. The limitation of the research is a relatively small number of participant principals ($N = 57$), and the implementation of exclusively quantitative approach in researching the stated constructs. Since the study was done during June and July 2020, for the purposes of writing a doctoral dissertation by [Kokanović \(2021\)](#), after a several months long cease of regular preschool institutions' work due to the global pandemic caused by the COVID-19 virus, the small number of the filled-out questionnaires was not surprising, but it was still satisfactory for further analysis. Taking into consideration the complexity and specificity of the functioning of preschool institutions, future research would advisedly implement the qualitative approach in order to attain a more in-depth understanding of this multifaceted issue. The space for researching these areas exists, and it is desirable to obtain scientific insight in that direction in order to enrich the literature in the field of early and preschool education and indicate the significance of the professionalization of the principal's role.

Conclusion

Nowadays it is expected of the principals to develop and promote the vision, plans, politics and action in cooperation with employees, parents and children/students in order to more efficiently and successfully head the preschool institution. To do all this in a quality manner, the function of the principal needs to become a profession, i.e. acquiring professional competence through continuous programmes of education should be provided. Without the planned and systematic pursuit in this meaningful field on the level of a national educational policy, the management of preschool institutions boils down to individual perception of the professional work of each principal within preschool institutions. Analysis of the research on this topic in the field of educational management and early and preschool education has not found similar studies, so the results of the present paper can contribute to understanding the complexity of the principal's role, therein its professionalization. The content and results of this research indicate the significance of investing in this part of the education system on the part of educational policy's creators, emphasising the implementation of already existing competence standards ([Staničić, Kovač and Đaković, 2016](#)) in order to regulate the function of the principal into a profession. To realise the full potential of the preschool institution and its stakeholders, it is necessary to define the qualifications and competences the principals should possess before assuming this role, and then also provide continuous evaluation of his/her work's accomplishment and the acquired competences. Professionalization of the principals would guarantee professionally competent, educated and aware experts managing education institutions, thereby positioning national education policy on a higher level since Croatia is at the back of the list of European countries when it comes to prescribing the standards for this important role in the education system. To become and remain the principal of an education institution based on national standards will empower the development of professional learning communities, thereby ensuring developmental quality worthy of our society's most important members: children.

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Conflict of interests

The authors declare no conflict of interest.

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Features of Critical Thinking of Individual Entrepreneurs With Different Levels of Self-Regulation

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Abstract: In the crisis conditions of entrepreneurs business functioning in Russian, it is important to develop critical thinking in conjunction with the skills of self-regulation of behavior. It is assumed that entrepreneurs with different styles of self-regulation differ in the level of critical thinking, and there is also a relationship between the styles of self-regulation and the level of critical thinking. The theoretical basis of the study is the idea of the relationship between the degree of formation of individual self-regulation and the productivity of performing various types of professional activities. The sample of the study consisted of 140 individual entrepreneurs engaged in entrepreneurial activity for more than two years, aged from 30 to 50 years. We used techniques to analyze the style of self-regulation of behavior, volitional self-regulation, critical thinking and mental abilities. The study allowed us to expand the understanding of the relationship between critical thinking and self-regulation, to reveal the content aspects of critical thinking of entrepreneurs with different levels of self-regulation of behavior. We found out that in the group of entrepreneurs with a high level of self-regulation of behavior, there is a high level of volitional self-regulation, perseverance, self-control, information processing skills and critical thinking skills. We came to conclusion that there are differences at the content and semantic level among entrepreneurs, differentiated by the type of self-regulation. For entrepreneurs with a low level of self-regulation, it is planned to conduct a program for the development of critical thinking.

Keywords: critical thinking, self-regulation, individual entrepreneurship, development program.

Introduction

The study updates research in the sphere of critical thinking. The participants of the World Economic Forum in Davos in 2020 put critical thinking on the second place in the list of skills in demand in the labor market. The focus of our interest was to understand the place of critical thinking in the activities of an individual entrepreneur. The developed critical thinking technologies (Smith, 2011; Zair-Bek and Mushtavinskaya, 2011; Al-Shalabi, 2015; Tang, Vezzani and Eriksson, 2020) are used for collaboration and developmental learning. From the theoretical point of view, the study of the problem of the critical thinking development in individual entrepreneurs with different styles of self-regulation confirms the works of scientists, clarifies scientific ideas about the social and psychological properties of the individual entrepreneur's personality. These features are manifested in a complex of relationships, self-esteem, motivation, and interaction with the economic side of activity (Zair-Bek and Mushtavinskaya, 2011). The researchers emphasize that critical thinking reflects a system of mental states, properties and processes that are aimed at producing an assessment. Critical thinking helps the individual entrepreneur think constructively, based on the four main principles that characterize this process: the need to identify and refute assumptions; verify facts, logical consistency; take into account contextual information; explore alternatives. Each of the principles is considered a thinking skill, and it takes practice and time to master them.

There are two different approaches to understanding of critical thinking. Critical thinking is a type of intellectual activity characterized by a high level of comprehension, perception, objectivity to the information received and the surrounding world (Klooster, 2002). Klooster D. J. speaks about five aspects, which differentiate critical thinking from the other types: it is completely independent; information creates

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a motivating factor for it; it arises from a question and determining the problem; it is a deep social thinking which is based on the intellectual abilities, the ability to argue (Klooster, 2002). Many modern researchers of critical thinking (Smith, 2011; Zair-Bek and Mushtavinskaya, 2011; Halpern, 2013; Robert and Petersen, 2013; Davies and Barnett, 2015; Bowell, Cowan and Kemp, 2019; Yaldız and Bailey, 2019; Dekker, 2020) understand the concept of "critical thinking" as a set of skills, abilities and personality traits that determine the highest level of research activity. Halpern D. F. describes critical thinking as the usage of cognitive strategies and techniques that increase the possibility of obtaining the desirable result (Halpern, 2013) characterizes it as the use of cognitive strategies and techniques that increase the likelihood of obtaining the desired outcome. This definition indicates that critical thinking is controlled, grounded, and purposeful.

In her theory of thinking styles Belousova A. K. describes the critical style of thinking as the performance of a selective function, which is expressed, first of all, in the ability of a person to see weaknesses, mistakes, and various shortcomings (Belousova and Pishchik, 2015). Critical thinking is used when it is necessary to solve a difficult problem, formulate conclusions, interpret the results, make an assessment and make a decision. A thinking person uses sound and effective skills that are relevant in a particular situation to solve a particular problem. Critical thinking consists of evaluating the thinking process, reasoning, which are the stages of the final conclusion and ultimately lead to a decision making (Zagashev and Zair-Bek, 2003; Yaldız and Bailey, 2019).

Researchers claim that critical thinking is evaluative and reflexive logical thinking that is based on personal experience and reliable facts. For it, knowledge is not an end point, but a starting point, reasoned and logical (Zagashev and Zair-Bek, 2003; Szenes and Tilakaratna, 2021). The teaching, which is focused on the formation of thinking skills, provides not only the assimilation of information, but also its application in the process of professional activity, comparison with the experience gained.

Halpern D. F. highlights the skills of a critical thinker, including analysis of the situation and conclusions, formulation, promotion and development of a hypothesis, search for solutions, activation of acquired knowledge and causal relationships, analysis of significance, comparisons, matching, use of argumentation, assessment of its reliability, generalization, study of other people's points of view (Halpern, 2013). Thus, critical thinking allows you to extract information from memory; interpret the information received, the situation, give examples, compare and generalize; apply your knowledge, skills and abilities in practice; analyze information, differentiate and correlate; evaluate information and develop your own criteria; create something new (Fedorov, 2007; Tang, Vezzani and Eriksson, 2020).

Zair-Bek S. I. for the formation of critical thinking, suggested an algorithm, which is based on the search for answers to the questions: 1. Setting a goal, choosing the only correct solution, as well as evaluating and verifying the accuracy of the information received. 2. Search for additional information. 3. Applying critical thinking skills. 4. Resolving issues and problems (Zair-Bek and Mushtavinskaya, 2011). Active thinking processes allow you to find the essence of the phenomenon that will satisfy your interest. The processes of critical thinking consist of curiosity, openness, lability, trusting attitude, honesty in judgments, and the desire to search for results. Critical thinking is based on the individual experience and personality qualities of the subject (Popkov, Korzhuev and Ryazanova, 2001; Zair-Bek and Mushtavinskaya, 2011).

The above-mentioned thoughts actualize the problem of developing the critical thinking of individual entrepreneurs to optimize their activities. There are technologies for developing critical thinking that can, with a certain degree of approximation, be reduced to three phases of training (Zair-Bek and Mushtavinskaya, 2011; Swart, 2017; Kitsantas, Baylor and Hiller, 2019; Tang, Vezzani and Eriksson, 2020). The first phase is a challenge, motivation. Its main purpose is to arouse interest in information, to focus attention on the raised topic. At this stage, information is collected, questions are raised and answers are given. The second phase is comprehension. It is characterized by the submission of new information. Its source can be an individual entrepreneur. In the second phase, a filter is applied to the previously raised questions, most of which are filtered out and the subject matter of the conversation appears. The final phase is reflection. Here the data is analyzed, opinions are exchanged, and the point of view is expressed. At this stage, we combine our own experience with new knowledge.

Techniques allow you to develop critical thinking skills. Critical thinking skills include providing an understanding of what thinking ability an individual entrepreneur needs to have in order to work effectively. Entrepreneurs should identify the causes of phenomena and events, learn the correct formulation of questions, the art of argumentation, as well as the ranking of information. The need for its development for an individual entrepreneur is to increase communication links. Successful entrepreneurial activity depends on the ability to analyze information, apply it to work, using personal potential and accumulated experience (Korzhuev, Popkov and Ryazanova, 2001; Peschl, Deng and Larson, 2020).

For effective activity, an entrepreneur must have the following qualities: readiness for planning (ordering of thoughts, consistency of presentation of the essence speaks of confidence), flexibility

(perception of other people's thoughts and ideas), perseverance (when faced with a difficult task, you do not need to postpone it for later), willingness to correct your mistakes (take note of incorrectly drawn conclusions), awareness (allow you to track the course of your own reasoning), search for compromise solutions (the decisions should be perceived by other people) (Zagashev and Zair-Bek, 2003; Kerr, Kerr and Xu, 2017). These qualities are related to the self-regulation of an entrepreneur.

Self-regulation in Russian psychology is understood as integrative mental processes that ensure the self-organization of a person's mental activity as a subject of actions (Morossanova, 2003; Morossanova, 2010). It was found out that professionals with a high level of self-regulation and the same level of development of all regulatory properties easier master new types of activities and more often achieve high efficiency in the professional sphere, as well as implement strategies of independence in decision-making. Kitsantas Baylor and Hiller (2019) define self-regulation as a cyclical process in which learners use external feedback to evaluate and adjust their learning strategies. That is why it is so important to take into account self-regulation when studying critical thinking. Kamgar and Jadidi established indirect relationship between critical thinking and the components of self-regulation (implementation and formulation of the plan, search and evaluation of factors) of students (Kamgar and Jadidi, 2016). With the help of critical thinking, one can achieve the set goals, process a large amount of information, work correctly and confidently with people, colleagues and subordinates, develop your own opinion, comprehend the gained experience, engage in self-education and build constructive relationships with others (Dwyer, 2017). The technology is based on the understanding of the acquired knowledge.

Thus, critical thinking is an important component, without which it is difficult to build constructive correct and effective activities. Today, the problem of developing critical thinking is incredibly relevant, as the era of the information society encourages people to independently search for the necessary information and interpret it logically. Scientists have come to the conclusion that a person who does not develop critical thinking (meaningful, objective, analyzing) is not able to make independent decisions, conduct in-depth analysis, search, apply the accumulated experience in the course of activities, draw conclusions and interpret the results. For an individual entrepreneur, it is important to think critically. This helps us achieve our goals, solve complex problems and solve economic issues. In this regard, the purpose of our research is to determine the features of critical thinking of entrepreneurs with different levels of self-regulation, who are involved in entrepreneurial activity in the Southern federal district on the territory of the Russian federation.

Materials and Methods

The study sample consisted of individual entrepreneurs who have been doing business for more than two years with varying degrees of economic success and work experience, aged from 30 to 50 years, in the number of 140 people, 85 men and 55 women. All entrepreneurs participated in the survey voluntarily. The survey was conducted via the Internet.

We used in the study: the questionnaire "The style of self-regulation of behavior by Morossanova" (Spiridonov, 1980); the test-questionnaire "The study of volitional self-regulation" by A. V. Zverkov and E. V. Eidman (Surkova, 2008); the test of critical thinking by L. Starkey (Starkey, 2004) (adapted by Lutsenko, 2014); The Wonderlic Intelligence Test (WIT) by E. F. Wonderlic and V. N. Buzin (Surkova, 2008); statistical methods: correlation analysis, Mann-Whitney U test.

The description of the research methods

The questionnaire "Style of self-regulation of behavior" consists of forty-six questions to which the following answers must be given: "True", "Perhaps true", "Perhaps not-true", "Not-true". The results are evaluated in accordance with the coincidences with the regulatory scales "Planning", "Modeling", "Programming", "Evaluation of results", "Flexibility", "Independence" and "General level of self-regulation". For each match, the test subject gets one point.

By the number of points scored, you can judge the results (low, medium, high level). For example, the scale "General level of self-regulation" evaluates the degree of meaningful self-regulation of activity in individual entrepreneurs. The subjects who scored a large number of points (a high indicator) are flexible, independent individuals who respond adequately to the changed conditions. They achieve their goal consciously. Entrepreneurs with a high level of self-regulation are able to change attitudes in order to achieve the goal. This allows him to achieve success in any field of activity and feel confident in difficult situations.

The low level of self-regulation in an individual entrepreneur indicates that the subject is not flexible

enough, he is not able to consciously plan and program his own behavior to achieve the goal. People with a low self-regulation depend on the opinions of others and on the circumstances or difficult situation. Success in mastering a new activity depends on the ability to regulate your own behavior and think critically.

The test questionnaire "Study of volitional self-regulation" consists of thirty questions-statements to which you need to answer "True" or "False", and put a "+" or "-" sign in front of each question, which corresponds to a positive or negative answer. The questions are simple, so they will not cause difficulties in answering. The level of volitional self-regulation is calculated, taking into account the coincidences in the general scale (B) and the scales "Perseverance" (H) and "Self-control" (C). High scores in all three scales indicate that an individual entrepreneur achieves his goals, is emotionally stable, self-confident, and is characterized by innovation and radicalism. The test subjects who got high scores are able to regulate emotions, be flexible, inventive, eliminate internal tension in difficult situations, and respond adequately to any circumstances. Such people are alien to the fear of the unknown, which allows them to achieve success even in an unfamiliar business. Low indicators are the opposite pole. The test subjects with low scores are insecure, emotional, sensitive, vulnerable, and have difficulty coping with fear, overcoming obstacles, and striving for innovation. These qualities prevent us from achieving our goals and success in the professional sphere and in life. The test results will help to correct the behavior and way of thinking of entrepreneurs who scored a small number of points, using the developed program.

The L. Starkey Critical Thinking Test consists of thirty questions. The test taker should mark the most appropriate answers, in his opinion. This questionnaire meets the psychometric requirements of reliability, is objective and is aimed at the adult age group of both sexes. The test is maximally adapted for use in modern society. You can use it to test your propensity for critical thinking. According to researchers A. V. Fedorov, D. G. Myers, D. F. Halpern, J. Berglund critical thinking explores assumptions, evaluates data, and draws conclusions, builds logical conclusions, creates consistent logical models and chains, and makes reasoned decisions (Fedorov, 2007; Myers, 2010; Halpern, 2013; Berglund, 2020).

The results of the L. Starkey test can be interpreted taking into account the accepted standards of testing: they can be divided into very high, high, medium, and very low levels of critical thinking. There are obstacles on the way of critical thinking. The first of them are emotions that prevent you from thinking rationally.

The Wonderlic Intelligence Test (WIT) consists of fifty questions. The main purpose of the questionnaire is to determine the level of intellectual abilities. This technique belongs to the category of tests of mental abilities (IQ), which indicate the general intellectual development of an individual and allows you to diagnose such parameters of intelligence as the ability to generalize and analyze, flexibility of thinking, speed and accuracy of perception of material, the choice of the optimal strategy, i.e. parameters that ensure effective processing of information. The questions are easy to understand, and the correct answers are related to the concentration of attention and the correct reading of the question. Some of the questions in the test did not have an answer to the choice, the test taker had to solve the problem himself, without any prompts. It is necessary to start the test in a cheerful state, which will allow you to cope with the questionnaire in a short time. The results are calculated according to the points system: one point is for each correct answer. Thus, the more points an individual entrepreneur scored, the higher his level of intellectual abilities. However, the authors of the test emphasize that if the test subject scores an insufficient number of points, that is, shows a low result, it will not indicate psychological professional unfitness. The reason for the low result may be fatigue, incorrect interpretation of the question. That is why it is possible to judge the intellectual abilities objectively only after a series of tests that the entrepreneur will pass. The test is given no more than fifteen minutes to complete, which complicates the task for the test subject.

A low test score (16 points or less) also indicates that an individual entrepreneur may experience some difficulties in professional activity and training. A high result (24 points or more) indicates a sufficient level of intellectual abilities that allows an individual entrepreneur to fulfill and master a wide range of responsibilities in any profession. Specialists with high intelligence quickly achieve results and success in creative activities.

We put forward the following hypotheses: H1 - we assume that it is possible to differentiate groups by the level of self-regulation; H2 – we assume that entrepreneurs with a high level of self-regulation also have high indicators of critical thinking; H3 - we assume that it is possible to find a stable relationship between the styles of self-regulation and the level of critical thinking in individual entrepreneurs.

To test the hypotheses we used statistical methods. Initially, the normality of the distribution of the trait within the sample was checked. Since the distribution of the trait was different from the normal one, we used the Spearman rank correlation and the nonparametric Mann-Whitney U test for further calculations.

Results

Group differentiation of entrepreneurs was carried out on the bases of diagnoses data of behavior self-regulation. High indicators on the scale of “General level of self-regulation” indicate that individual entrepreneurs are quite independent, adequately and flexibly react to changing of working and living conditions. They are able to put forward and achieve goals consciously. The motivation of an entrepreneur with a high level of self-regulation is compensated by character traits, personal qualities that prevent him from moving towards the goal. The higher the level of self-regulation of the respondent, the easier he copes with a new type of activity, adapts better in an unfamiliar environment, and achieves goals faster. The results are presented in Table 1.

Table 1
Indicators of self-regulation in groups

Scales	Groups	N		Minimum		Maximum		Mean		Std. Deviation	
		1	2	1	2	1	2	1	2	1	2
General level of self-regulation style		54	86	33,00	21,00	39,00	32,00	35,00	27,34	1,88	3,65
Planning		54	86	2,00	1,00	9,00	9,00	5,92	5,53	2,40	2,40
Modelling		54	86	2,00	1,00	8,00	9,00	5,35	5,26	2,06	2,55
Programming		54	86	3,00	4,00	9,00	9,00	7,07	7,26	1,94	1,56
Results evaluation		54	86	2,00	2,00	9,00	9,00	5,85	5,53	2,31	2,38
Flexibility		54	86	3,00	4,00	9,00	9,00	7,28	7,23	1,89	1,58
Independence		54	86	4,00	4,00	9,00	9,00	7,50	7,23	1,60	1,39

Accepted abbreviations: 1- a group with high self-regulation; 2 – a group with low self-regulation.

The test subjects with low levels of self-regulation depend on the situation and surrounding people, need conscious programming and planning of their own behavior. New types of activities for individual entrepreneurs with a low level of self-regulation cause difficulties, and the results are directly dependent on working conditions. The categories of self-regulation were also analyzed: planning, modeling, programming, evaluation of results, flexibility, independence (Table 2).

Table 2
The results of the study of behavior self-regulation

Indicators	Average point in group 1	Average point in group 2	U	p
General level of behavior self-regulation	35	27,35	163,2	0,00
Planning	5,93	4,54	138,0	0,05
Modelling	5,36	4,27	-	
Programming	7,07	7,27	-	
Results evaluation	5,86	5,54	-	
Flexibility	7,29	6,23	-	
Independence	7,50	6,23	0,05	

According to the calculations, the indicators of the general level of self-regulation of behavior are higher in the first group, in the second group they are low. The calculation of the criterion for the significance of differences showed that these differences are statistically significant.

After that, we investigated volitional self-regulation, which is associated with general self-regulation. High indicators of volitional self-regulation of respondents on the three scales “General self-regulation”, “Perseverance”, “Self-control” indicate emotional maturity, activity, stability, and realistic views. Individual entrepreneurs with a high level of volitional self-regulation have a developed sense of their own duty, reflect well their personal motives, are able to properly distribute their forces, keep everything under control. They are highly efficient, strive to fulfill their tasks, overcome any obstacles, and respect social norms. High indicators indicate emotional stability, self-confidence, a propensity for innovation, and a

desire for self-control.

Low indicators of respondents on all three scales indicate sensitivity, emotional instability, vulnerability, and self-doubt. Individual entrepreneurs with low indicators have low reflexivity, a reduced background of activity, impulsivity, high lability, and self-doubt. All this leads to inconsistency of actions, resentment, inner feelings, inability to overcome conflicts. Low indicators may also indicate the inability to adequately respond to situations, interact with people, indicate violations of personality traits. Table 3 shows the results on the indicators of volitional self-regulation of entrepreneurs.

Table 3
The results of the study of volitional self-regulation

Scales	Groups	N		Minimum		Maximum		Mean		Std. Deviation	
		1	2	1	2	1	2	1	2	1	2
Volitional self-regulation		54	86	13,00	11,00	23,00	24,00	18,85	18,57	3,15	3,31
Perseverance		54	86	9,00	6,00	14,00	14,00	11,78	9,34	1,71	1,97
Self-control		54	86	4,00	6,00	12,00	12,00	9,21	8,84	2,11	1,31

The comparative analysis showed that the average values of the indicators of the level of volitional self-regulation are higher in the first group, as well as perseverance, self-control. There is a high significance of differences in the level of perseverance scale (Table 4).

Table 4
Comparative analysis of volitional self-regulation

Scale	Average point in group 1	Average point in group 2	U	p
Level of volitional self-regulation	18,86	18,58	-	
Perseverance	11,79	9,35	64,50	0,001
Self-control	9,21	8,85	-	

Thus, the H1 hypothesis was confirmed and the group was divided into 2 parts: respondents with high and low self-regulation indicators.

Next, we determined the level of critical thinking of the entrepreneurs of the two groups. The high results of the respondents on the test indicate that these individual entrepreneurs have well-developed logical thinking, induction, deduction, and reflection. An individual entrepreneur can well control his emotions. These emotions affect the making of responsible decisions; analyze information, check it for reliability, recognize manipulation from the outside, advertising, propaganda, detect cause and effect, allow and recognize the limitations of your own thought process, take into account and accept other people's opinions, develop the most realistic and optimal solutions in difficult conditions and achieve them. An individual entrepreneur with a high level of critical thinking is an effective professional who makes complex and responsible decisions; quickly adapts to changing environmental conditions. The results were presented in Table 5.

Table 5
Indicators of critical thinking

Scales	Groups	N		Minimum		Maximum		Mean		Std. Deviation	
		1	2	1	2	1	2	1	2	1	2
Critical thinking		54	86	15,00	10,00	26,00	25,00	20,42	17,80	3,03	3,86

At the next step, we identified the mental abilities of entrepreneurs. The results are presented in Table 6.

Table 6
The results by the level of mental abilities

Scales	Groups	N		Minimum		Maximum		Mean		Std. Deviation	
		1	2	1	2	1	2	1	2	1	2
Level of mental abilities		54	86	29,00	17,00	47,00	37,00	36,07	27,61	4,71	5,45

High and average results on the questionnaire for the diagnosis of intelligence in individual entrepreneurs may indicate that the respondents have a sufficient level of education in the humanities and exact sciences, the ability to generalize and analyze, flexibility and inertia of thinking, switchability, speed and accuracy of perception, distribution and concentration of attention, spatial imagination, general literacy.

Low results (not revealed) indicate that the individual entrepreneur has an insufficient level of concentration, distribution of attention. The intellectual capabilities of the respondent indicate the level of development of skills and abilities in professional and educational activities that an individual entrepreneur has at a particular time. A low indicator does not indicate the intellectual failure of the respondent, but is an indicator of a certain state.

The level of intellectual abilities of individual entrepreneurs is higher in the first group, these differences are significant (Table 7). The level of critical thinking is higher in the first group, these differences are significant. The H2 hypothesis was confirmed.

Table 7
Comparative analysis of the results of the level of critical thinking and mental abilities

Indicators	Average points in group 1	Average points in group 2	U	p
Level of critical thinking	20,43	17,81	110,0	0,05
Level of mental abilities	36,07	27,62	36,00	0,01

The low results on this test indicate that the individual entrepreneur copes with a small number of tasks that require the use of critical thinking. This means that the respondent has insufficiently developed logic, induction and deduction, the ability to recognize unreliable data and search for objective ones, to distinguish manipulation from the outside, to make the right decisions, to be reasoned, as well as to feel the bias of other people. An individual entrepreneur with a low level of critical thinking is not competent enough in an intellectual dispute, and may behave aggressively. Often such people follow the leading of others, become "hostages" of all kinds of beliefs, including sects, as well as bad habits due to the inability to think critically. The development of critical thinking will help to improve the quality of life by changing the emotional state of the respondent.

Our next step was to perform a correlation analysis of the data. The correlation analysis showed that there is a connection between critical thinking and self-regulation and the peculiarities of thinking of individual entrepreneurs with different types of self-regulation.

The results of correlation analysis in Group 1 are presented in Table 8.

Table 8.

Correlation analysis of indicators in Group 1 of entrepreneurs with a high level of behavior self-organization

Indicators	1	2	3	4	5	6	7	8	9
1. Volitional self-regulation	1								
2. Persistence	0,26	1							
3. Self-control	0,81**	0,06	1						
4. Critical thinking	0,57*	0,02	0,42	1					
5. Mental abilities	0,47	0,67*	0,39	0,32	1				
6. Flexibility	0,52	-0,03	0,62*	0,43	0,05	1			
7. Evaluating results	0,67*	0,09	0,51	0,57*	0,05	0,47	1		
8. Programming	0,64*	0,595*	0,59*	0,73**	0,30	0,75**	0,52	1	
9. General level of self-regulation	-0,16	-0,15	-0,15	0,39	0,173	-0,28	-0,16	0,02	1

** $p \leq 0,01$, * $p \leq 0,05$

In Group 1 the level of critical thinking positively correlates with the indicators of volitional self-regulation ($r = 0,57$, $p = 0,034$), evaluation ($r = 0,57$, $p = 0,034$), programming ($r = 0,73$, $p = 0,003$), there is a positive correlation between the general level of self-regulation and independence ($r = 0,59$, $p = 0,028$), the level of volitional self-regulation positively correlates with self-control ($r = 0,81$, $p = 0,000$), evaluation ($r = 0,66$, $p = 0,010$), programming ($r = 0,64$, $p = 0,013$), mental ability is related to perseverance ($r = 0,66$, $p = 0,011$), flexibility is related to self-control ($r = 0,62$, $p = 0,019$).

The results of correlation analysis in Group 2 are presented in Table 9.

Table 9.

Correlation analysis of indicators in Group 2 of entrepreneurs with a high level of behavior self-organization

Indicators	1	2	3	4	5	6	7	8	9
1. Volitional self-regulation	1								
2. Persistence	0,45*	1							
3. Self-control	0,65**	0,51**	1						
4. Critical thinking	0,68**	0,52**	0,43*	1					
5. Mental abilities	0,36	0,32	0,30	0,69**	1				
6. Flexibility	-0,08	0,03	-0,09	-0,08	-0,09	1			
7. Evaluating results	0,12	0,07	0,12	0,24	0,18	0,10	1		
8. Programming	-0,29	-0,07	-0,31	-0,32	-0,35	0,10	0,09	1	
9. General level of self-regulation	0,35	0,09	0,35	0,47*	0,52**	-0,28	0,10	-0,43*	1

** $p \leq 0,01$, * $p \leq 0,05$

The results of the correlation analysis in Group 2 are presented in Table 9. In Group 2, the following positive correlations were established between critical thinking and the overall level of self-regulation style ($r = 0,47$, $p = 0,016$), volitional self-regulation ($r = 0,68$, $p = 0,000$), persistence ($r = 0,52$, $p = 0,006$), self-control ($r = 0,43$, $p = 0,030$), volitional self-regulation is interrelated with perseverance ($r = 0,45$, $p = 0,021$) and self-control ($r = 0,65$, $p = 0,000$), the overall level of self-regulation is correlated with mental abilities ($r = 0,52$, $p = 0,006$).

According to the results of the correlation analysis, we can conclude that the H3 hypothesis has been confirmed.

Discussions

The behavior of an individual entrepreneur depends on the mechanism of self-regulation, self-knowledge, motivation to achieve success in professional activities, as well as on subjective resistance to

an unfavorable socio-economic environment (Kerr, Kerr and Xu, 2017; Peschl, Deng and Larson, 2020). Self-regulation of the individual is closely related to the level of critical thinking, socio-psychological mechanisms, which are an important criterion for the diagnosis and implementation of the program for the development of critical thinking in an individual entrepreneur. It is consistent with the research results (Morossanova, 2010; Kitsantas, Baylor and Hiller, 2019). The internal motivation of an individual entrepreneur to work, the level of problem solving, the realization of opportunities, and the increase in personal potentials depend on the ability to think critically and self-regulation (Barba-Sánchez and Atenza-Sahuquillo, 2012; Staniewski and Awruk, 2019).

In the course of the study, we identified a tendency to use a certain type of thinking in work and everyday life and a style of self-regulation of behavior. In this regard, there is a confirmation of two hypotheses of the research work about the existence of features of the development of critical thinking in individual entrepreneurs with different styles of self-regulation and the relationship between the styles of self-regulation and the features of critical thinking. This result is combined with the studies (Karabey, 2012; Belousova and Pishchik, 2015), which highlighted the thinking styles of entrepreneurs in combination with decision-making. The analysis of the socio-psychological characteristics of individual entrepreneurs with different styles of self-regulation allows us to identify the typology of a person who can achieve success in professional activities, thanks to critical thinking.

Self-regulation and critical thinking provide an opportunity for an individual entrepreneur to selectively interact with the professional environment, create individual conditions for relationships, show personal meaning, and use the best strategies for independent activity (Kamgar and Jadidi, 2016; Kitsantas, Baylor and Hiller, 2019). The lack of internal freedom, the ability to think critically can cause the individual entrepreneur be dependent on the circumstances that arise, as well as ineffective behavior. The independence of individual entrepreneurs is the dominant motivation, social and psychological characteristics of self-awareness. Critical thinking helps an entrepreneur feel like a competitive person and a specialist who can manage any circumstances. The empirical criteria of critical thinking and the ability to self-regulate are logic, creativity, analysis, convincing argumentation, independence, reasonableness, interest, free behavior, and acceptance of other people's opinions. The opposite criteria, such as manipulation from the outside, lead to a lack of self-regulation and flexible thinking, as well as the use of meaningful information.

Critical thinking contributes to better interaction with other people, efficiency, and growth in professional activities (Dekker, 2020). Due to the fact that society and the socio-economic environment impose certain norms on the entrepreneur that hinder effective development, critical thinking and self-regulation protect the entrepreneur from the negative influence of the environment.

The problem of critical thinking forming and self-regulation of behavior as a mechanism of independent choice of the direction of self-development is of a professional, social, and economic nature. The unfavorable environment for the Russian entrepreneurs is the reason for the inefficiency of thinking and the lack of self-regulation of behavior. The socio-psychological characteristics of an entrepreneur's personality depend on the style of self-regulation of social behavior and freedom of activity (Altinay et al., 2020). Critical thinking allows the individual to use his full potential and internal sources of psychological self-regulation. With the help of critical thinking, such issues as the effectiveness of activities, adaptation to unfavorable economic and social conditions for the development of domestic entrepreneurship are solved (Mushtavinskaya, 2013). In turn, critical thinking allows the entrepreneur to rely entirely on his own opinion, overcoming grouping thinking (Myers, 2010). An individual entrepreneur with a different type of self-regulation, but capable of critical thinking, shows perseverance, professionalism in any uncertain situation.

Conclusions

The conducted research allows us to draw the following conclusions:

In the course of the study, we found out that individual entrepreneurs have differences in the level of volitional self-regulation. Group 1 has a high level of volitional self-regulation, these differences are significant, Group 2 has low level of volitional self-regulation.

The correlation analysis showed that the level of critical thinking positively correlates with the indicators of perseverance, self-control, evaluation of results, the level of volitional self-regulation, the level of self-regulation of behavior. The level of volitional self-regulation is positively correlated with perseverance, self-control, and the level of mental abilities. Flexibility is positively correlated with programming. The level of mental ability is positively correlated with the level of volitional self-regulation,

perseverance, self-control, the level of self-regulation of behavior and the level of critical thinking. There are straight, direct and indirect relationships between critical thinking and the style of self-regulation.

Thus, the higher the level of critical thinking of an individual entrepreneur and such categories as self-control, perseverance, evaluation of results, flexibility, programming, the higher the level of self-control, self-regulation of behavior and, in general, improving the effectiveness of professional activities. The development of critical thinking of an individual entrepreneur contributes to the development of self-regulation.

The recommendations for the formulation of a program for the development of critical thinking in individual entrepreneurs with different styles of self-regulation are in the replacing old goals and attitudes with the new ones. An individual entrepreneur in the process of implementing program methods is aimed at self-improvement and self-development. Knowledge and new skills are acquired in the form of activity, there is a formulation of own goals and a search for ways to achieve them, the desire for objectivity, self-control, the formation of personality, the development of critical, analytical and logical thinking, productive activity, flexibility.

The techniques are the first stage for psychological correction of thinking in entrepreneurs who have an insufficiently productive way of thinking (Von Kortzfleisch, Zerwas and Mokanis, 2013). Based on an empirical study, the formed critical thinking is not characteristic of all respondents, which negatively affects the professional activity of an entrepreneur. The program gave rise to the process of formation of reflexive thinking, the purpose of which is the search for knowledge, independence and creativity. Such programs are presented in modern research (Malik and Ubaidillah, 2020; Peschl, Deng and Larson, 2020).

The following goals and objectives can be achieved with the help of recommendations for the development of the program:

1) to form the skills and abilities of individual entrepreneurs with different types of self-regulation that will help develop critical thinking.

2) to create the necessary conditions for an individual entrepreneur to be able to practice the acquired skills in practice.

3) to use critical thinking in professional activities, taking into account the characteristics of individual, his temperament, attitudes and style of self-regulation.

The goals of the program form a set of professional skills for individual entrepreneurs, which include:

- finding the necessary information related to solving a problem;
- critical comprehension of the received information, their interpretation, immersion in the essence of the phenomena;
- systematization of information according to certain characteristics;
- search and finding of errors in the received information, their correction;
- perception of someone else's point of view, making well-founded arguments;
- maintaining objectivity, calmness, despite the circumstances.

Based on the research works of domestic and foreign scientists and psychologists, as well as an empirical study, the information obtained was used in the implementation of recommendations for the preparation of a program for the development of critical thinking. Well-developed critical thinking is an integral part of successful learning, as well as the optimal use of important information in professional activities and life.

During the development of the program recommendations, the most effective strategies, techniques and exercises were used to help the individual entrepreneur develop the skills that became the beginning of the development of critical thinking, as well as the replacement of non-reflexive thinking with effective thinking. With the help of the program, the necessary conditions will be created for an individual entrepreneur to be able to apply the acquired skills in professional activities. The program is designed to use the knowledge and skills of critical thinking in the work, taking into account the peculiarities of psychological self-regulation of behavior, temperament and attitudes.

In the course of the program, the entrepreneur must acquire the skills of reasoned speech, logical, coherent presentation of thoughts, and the use of speech for communicative, motivational, and creative communication.

During the elaboration of the program for the development of critical thinking, a dominating condition was created, which consists in the transfer of specific knowledge, provoking cognition in students, critical comprehension of the proposed material, selection of information by reflexive methods, in terms of its functionality and relevance in practice.

Thus, the successful implementation of the program for the development of critical thinking in individual entrepreneurs with different styles of self-regulation depends on the external conditions,

psychological mood and faith in the old attitudes and goals.

We see the prospects for further research in the fact that the indicators of self-regulation, mental abilities and the level of critical thinking of male and female entrepreneurs will be compared. We will also compare the results of entrepreneurs from different regions of Russia.

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Conflict of interests

The authors declare no conflict of interest.

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Indicators of the Wider Social Context and Academic Performance of the Deaf and Hard of Hearing Students

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Abstract: The evaluation of the educational system is performed through the prism of the relationship between the individual person and society, taking into account social and economic, political, cultural, socio-economic, family tendencies and directions of development. Therefore, the analysis of the influence of social, economic, welfare, psychological and school factors is necessary in order to identify the positive, but also the negative influences of the factors and thus prevents the poor academic results of the deaf and hard of hearing students. The research problem is aimed at a wider understanding of the factors of academic achievement or failure of the deaf and hard of hearing students in order to improve the quality of their education and upbringing of deaf and hard of hearing students in schools for the deaf and hard of hearing, but also in the field of inclusive education. This paper presents a part of the research results related to the correlation between the indicators of the wider social context and the academic performance of the deaf and hard hearing students. The sample consisted of 59 respondents attending schools for the deaf and hard of hearing students in the Republic of Serbia. For this research, the method of theoretical analysis and synthesis was used in the study of the relevant literature and the determination of theoretical facts important for the research problem, and the survey and content analysis were used as the research techniques. The results showed that there were no statistically significant differences in academic achievement in relation to the type of environment in which the students are living, or in relation to the presence of the cultural institutions in the environment. There is a difference in the academic achievements of the deaf and hard of hearing students in whose environment there are or there are no active organizations for the deaf and hard of hearing, which represents important data in order to create strategies to support the deaf and hard of hearing students.

Keywords: deaf and hard of hearing students, academic performance, indicators of a wider social context.

Introduction

At the end of the first half of the last century, the focus of researchers was on examining the influence of factors of a wider social context on students' academic performance (Poulou, 2014). The research results have shown that the achievement of students is significantly affected by cultural and environmental differences as well as social class. Various aspects point to the correlation of middle and working classes with varying performance in education. Poverty, population density and social class, in addition to causing poor results, significantly deny and inhibit further progress in education (Roksandić, 2016). Also, research findings have shown that poverty lowers the level of education of family members, and parental expectations of children. Furthermore, less educated and poor parents have less money, energy and time to devote to encourage the development of the full potential of their children. Studies have established that the poverty of one generation affects the life chances of the following, regardless of the ability of the following generation (Arroyo, Rhoad and Drew, 1999; Hill and Taylor, 2004; Seely, 2004). Then, unequal division of possibilities per social class affect their attitude towards education, so children from economically deprived families often have more pronounced negative attitudes towards school, less support to succeed in school and lower motivation for achievement (Howse, 2010). Ivanovic (2008) agrees that social background also significantly contributes the formation of attitude on professional orientation.

The academic performance of an individual is also conditioned by the existing cultural differences. Namely, one of the important indicators of academic achievement is the culturally deprived environment,

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and each family accepts the cultural values of the environment to which it belongs (West and Pennell, 2003). In addition, certain cultural characteristics are common to almost every family, while on the other hand, there are several specific cultural characteristics for each subculture, which are reflected in academic achievement (Cook and Tseng, 2019).

As a factor of wider social context, it is possible to observe the difference between urban and rural areas either according to their structural characteristics and composition of the social institutions in them or according to the attitude of these areas towards education. While in urban areas there is a jagged network of different institutions and complex influences on the behaviour and relationships of people, there is a more complex structure of family life in rural areas, a simpler arrangement of social institutions. Urban and rural areas differ in the moral values, educational level of the population, the general level of the culture, economic elements which significantly affect the formation and development of certain types and patterns of behaviour, but also the good or poor academic achievement (Jevtić, 2014). Findings of the researchers in the world have shown that children from neighbourhoods inhabited by people without qualifications often do not graduate from school and children from isolated rural settlements after basic education face difficulties in furthering education (Blanchett, Mumford and Beachum, 2005).

Research conducted in our country shows that with a higher degree of urban environment achievements of students are greater (Malinić, 2009). On the other hand, the results of some researches indicate that the success of students is significantly influenced by the educational level of parents than the type of environment in which they live (Havelka, 2000; Jurčević Lozančić and Kunert, 2015).

The process of socialization and education is stimulated or slowed down by educational incentives determined by the family climate and cultural elements. Thus, under the influence of cultural and family factors, children begin their education with different prior knowledge and different degrees of maturity for education. Research findings show that there are specially marked differences in the performance of children from urban and rural areas, where much better success is of children living in cities (Ivanovic, 2008). Every family accepts the cultural values of the environment to which it belongs, and one of the important indicators of academic achievement is the culturally deprived environment.

Considerations of the influence of the social environment on the academic achievement of students are possible from the aspect of existing cultural differences and social classes. Researches in the field of sociology of education direct their attention to the question of the impact of socio-economic status and education of parents on growing up, socialization, and education for children. It is not uncommon to ask why members of individual social groups achieve a higher level of success in schooling than other groups (Jurčević Lozančić and Kunert, 2015). The results of the research show that school success grows from the bottom to the top of the class system, and social inequalities between classes are explained by different degrees of the presence of achievement syndrome. The characteristic of the lower classes is that the achievement motive is not part of their aspirations and mentality. By contrast, members of the middle and high class have developed motivation for social success, which is transmitted to their children and in such a manner affects better academic achievement. Researches that have addressed the impact of social origin on education indicate that there is a connection between class origin and success at school (Ivanovic, 2008).

Good academic achievements have a significant impact on the development of the child's personality and its overall functioning and it is a problem not only for individuals, teachers, students and parents but also for society as a whole. The interest of students, families, schools and the wider social environment to see all the causes that lead to failure and create conditions for optimal development and achievement of students have root in the fact that the consequences of poor academic performance affect the quality of life of the individual as a whole.

Family, school and social environment stand out among the factors of the external environment as those factors that have the strongest influence on the academic performance of students. A great number of research works point out the socio-economic and socio-cultural stimulating aspect of the family and are characterized by the degree of relevance which is attributed to a group of factors (Pavkovic, Roksandić and Kovacevic, 2018). On one hand, the authors emphasize the child's academic performance is predominantly determined by family relationships and patterns of behaviour within the family (Redding and Walberg, 2012; Petersen, 2010), while on the other hand, research findings highlight the impact of socio-economic status on academic performance (Leinonen, Solantaus and Punamaki, 2003; Swift, 1975; Taylor, Roberts and Jacobson, 1997). The education level of parents, family income and parental occupations are considered as the most reliable indicator of socio-economic status (Simić-Vukomanović, Đukić Dejanović, Đonović and Borovčanin, 2012). Results of research regarding the correlation of the conditions of family environment and academic achievement show that there is a significant correlation between father's educational level and success in school, as well as income and housing conditions

(Stanojlović, 2012). The influence of these factors is combined through continuous interaction, so wider socio-economic factors are reflected indirectly on the socio-economic and socio-cultural status of the family and through parents affect the child's school achievement (Fantuzzo, Tighe and Childs, 2000; Grolnick and Slowiaczek, 1994; Grolnick et al., 1997).

The family as the basic social environment in which the child's personality is formed and the school as an institutional form of education build a system that operationalizes its activity by the interaction of parents and teachers (Riley and Ungerleider, 2012; Roksandić and Kovačević, 2016a; Popović, 2019; Stamatović and Stojanović, 2019). One of the key factors in alignment and achieving common objectives is including parents in school activities and decision-making (Sheridan and Kratochwill, 2007; Roksandić, 2016). Conditions for the achievement of the basic tasks of education and training process, acquisition of knowledge, skills and habits in line with the potential of each child individually is created by building a relationship of mutual respect and trust (Guardino and Antia, 2012; Roksandić, 2016; Ristić, 2018; Roksandić, Pavković and Kovačević, 2018). What is more, the school environment promotes and enhances the competence of parents for the upbringing and realization of high-quality family relationships (Epstein, 2010; Epstein et al, 2018; Zins et al., 2004; Roksandić and Kovačević, 2016a; Popović, 2019).

Looking at the wider picture, at the societal level, in addition to the above, several factors of the social environment which include requirements, organization, or processes in which the social life is carried out, participate in the process of education and upbringing. Between social environment and school, there is continuous interaction, correlation and interdependence. On one hand, the environment provides inputs to the system of education, expresses requirements and expectations, and on the other hand, it appears as an integral, direct and parallel carrier of educational impact.

Research results showed that an unsupportive and inadequate school environment creates the risk of poor academic performance of students, poor grades and dropout (Chen, Chang and He, 2008; Mijatović and Radovanović, 2020; Seeley, 2004). Schools differ regarding the conditions they provide, and the progress of students is different in different schools. The elements that determine the success or failure of the school are from the group of material and technical conditions, quality of teaching and staff structure as well as the attraction of the curriculum and extracurricular activities (Malinić, 2014; Malinić, 2009; Vilotijević and Vilotijević 2014).

The group of authors states that the poor academic achievement of students arises from the internal organization of schoolwork and the organization of the teaching process. We believe that the school today is very challenged because of the "race" with the media. If the school accepts that one of the basic tasks is to provide "necessary information" to students, then it agrees in advance to a supporting role, and to defeat (Milovanović, 2014).

Empirical findings confirmed that the traditional teaching and frontal forms of work is one of the most common causes of poor academic performance which misses group, cooperative work and that students are rarely encouraged to talk and discuss things (Ilić-Stošević 2006; Kovačević, 2007; Roksandić, 2014). Although, the teacher and his role in the teaching process indisputably contribute to academic achievement, especially the teacher's expectations of students and their behaviour (Arroy, Rhoad and Drew, 1999; Stanojević and Jovanović, 2018). By the attitude, relationship and skills, the teacher is the one who creates a stimulating atmosphere and the learning situation that will enable versatile development of each student (Jakšić and Malinić, 2019).

Research of academic achievement in the population of deaf and hard of hearing students in our country included the variables, such as sign language, technics of reading and level of understanding of reading, competencies of teacher of information and communication technology, teaching strategies and application of individual education plans, independent writing (Bigler et al., 2019; Boerrigter et al., 2019; Radoman and Nikolić, 2013; Karić et al., 2012; Dimić and Kljaić, 2011; Radovanović and Karić 2011). The increase in the number of both theoretical and empirical kinds of research on academic achievements over the past decades speaks of the relevance of this problem and indicates its complexity.

Materials and Methods

Research goal

Following the findings of previous researches on academic achievement confirming the several factors correlation in the impact on academic achievement, initial expectations in this research were directed towards the potential of confirming the correlation when it comes to the academic performance of deaf and hard of hearing students. With the deaf and hard of hearing students the reciprocal impact of various indicators in conjunction with a consequence of primary impairment, the issue of academic

achievement seems particularly complex. Seen through the prism of the consequences of hearing impairment, the influence of these factors does not always result in positive educational outcomes, so the research problem was focused on a wider understanding of the factors of academic performance of deaf and hard of hearing students.

The research aimed to examine external indicators of academic performance of deaf and hard of hearing students, viewed through indicators of a wider social context.

Research hypotheses

The basic hypothesis is defined as there is a statistically significant correlation between external indicators of the wider social context and academic performance of the deaf and hard of hearing students.

Specific research hypotheses are defined as assumptions that:

- there is a statistically significant correlation between the type of environment and academic performance,
- there is a statistically significant correlation between the existence of cultural institutions in the place of education and academic performance,
- there is a statistically significant correlation between the existence of organizations for the deaf and hard of hearing in the place of residence and academic performance.

Sample for the research

The research sample included 59 respondents who attend a school for the deaf and hard of hearing students in the territory of the Republic of Serbia. Regarding academic performance, 28 respondents were excellent students (47.5%), 13 respondents were very good students (22.0%), 14 respondents were good students (23.7%) and 4 respondents were close fail students (6.8%). Regarding the hearing impairment, there were 35 deaf respondents (59.3%) and 24 hard of hearing respondents (40.7%). In relation to the place of residence, there were 19 (32.7%) respondents from the rural area (with population up to 10,000), 24 (41.3%) respondents who live in small town (with a population up to 100,000) and 15 respondents (25, 8%) with a place of residence in the city (with a population over 100,000). In relation to the presence of cultural institutions in the place of residence there were 32 (54.2%) respondents in whose environment there are cultural institutions, 20 respondents (33.9%) in whose environment there are no cultural institutions, 11.9% of respondents did not reply to this question. In relation to the existence of deaf and hard of hearing organizations in the place of residence, there were 18 respondents (30.5%) in whose place of residence there are active organizations for deaf and hard of hearing persons, while in the environment where 41 respondents live (69.5%) there are no organizations for the deaf and hard of hearing.

Methods, techniques and instruments

For the research, the methods of theoretical analysis and synthesis were used to study relevant literature and determine the theoretical facts relevant to the research problem. Relating the research techniques, survey and analysis of the contents were used. In addition to general information about the respondent, the questionnaire contained a list of questions about the place of residence, the presence of cultural institutions in the place of residence, the existence of organizations for deaf and hard of hearing in the place of residence.

Statistical data processing

Data on socio-economic indicators of academic performance of the deaf and hard of hearing students were processed using software for statistical data processing SPSS 20.0. Descriptive statistics - frequencies, percentages, arithmetic averages and standard deviations - were used to present the results. Spearman's (nonparametric) and Pearson's (linear) correlation coefficient were used to establish the relationship between variables. The T-test for independent samples was used to determine the significance of differences in academic performance between students in whose environment there are or there are no cultural institutions, among students in whose environment there are or there are no organizations for the deaf and hard of hearing. In the listed cases, the children were divided into two groups. The analysis of variance for independent samples examined the significance of differences in the academic performance of students from different backgrounds.

Results

Results obtained in the research are presented compared to defined variables.

1. Type of environment and academic achievement of the deaf and hard of hearing students

Table 1

Difference between the respondents from different backgrounds in relation to academic performance

Place of residence	N	AS	Sd	F	p
City	15	4.08	.84	.140	.870
Town	24	3.92	1.05		
Village	19	4.02	.96		

$p < .05^*$; $p < .01^{**}$; $p < .001^{***}$

The results of the research related to the academic performance of the deaf and hard of hearing students according to the place of residence showed that in the city there were 43.8% of excellent students and an equal number of very good students, and good and close fail students 12.5%. The largest number of excellent students was in the town 45.8% and the village 52.6%. In the town, there were 25.0% of very good and 20.8% of good students, while in the village there were 10.5% of very good and 21.1% of good students. About the place of residence, in all three observed groups, there were the fewest students who achieved very poor academic results.

The obtained results (Table 1) showed that the F- quotient is not statistically significant, ie. that there are no statistically significant differences in academic performance between students from the city, town and students from rural areas ($p = 0.870$).

2. Results of the correlation between the existence of cultural institutions in the environment and academic performance

Table 2

Results of examining the significance of differences in children's academic performance in connection to the existence of cultural institutions in the environment in which they live

Cultural institutions	M	Sd	t	P
Present	4.10	1.03	1.162	.251
Not Present	3.78	.84		

$p < .05^*$; $p < .01^{**}$; $p < .001^{***}$

The results of research related to the distribution of students according to academic performance about the existence of cultural institutions in the place of residence show that in places with cultural institutions, there are 50.0% of the excellent students, while there are 15.6% of very good students, 12.5% good students and 9.4% close fail students. In places where there are no cultural institutions, there are 40% of excellent students, but fewer students with close fail grades. 20.0% are good students in places where there are no cultural institutions, while 25% of students have academic success. The situation regarding the presence of cultural institutions shows that the most common institution was the theatre (40.6%), followed by museums (28.1%). The art galleries were present the least (3.1%). By crossreferencing the data on the presence and type of cultural institutions in the place of residence and academic performance of the deaf and hard of hearing students obtained results showed that there was no statistically significant difference in academic performance between children in whose environment there are and in whose environment there are no cultural institutions (Table 2).

3. Organizations for the deaf and hard of hearing in the place of residence and academic performance

Table 3

Results of the t-test for examining the significance of differences in children's academic performance in relation to the existence of active organizations for the deaf and hard of hearing in the environment in which they live

Active organizations for the deaf and hard of hearing	AS	Sd	T	P
Present	4.41	.74	2.613	.012*
Not present	3.80	.98		

p<.05* ; p<.01**; p<.001***

Analysis of the results of research relating to the distribution of students according to academic achievement in relation to the presence of the organizations for the deaf and hard of hearing showed that there are 66.7% of excellent students in the place where there are organizations for the deaf and hard of hearing, very good students 16.6%, while there is an equal number of 5.6% of good and close fail students. Regarding academic performance in the areas in which respondents have declared that there is no organization for the deaf and hard of hearing, there are 39.0% of excellent students, 17.1% of very good, 24.4% of good, while close fail were 7.3% of students.

In relation to the type of active organization for the deaf and hard of hearing 61.8% of respondents cited there is the Association of the Deaf and Hard of Hearing in their place of residence, 22.2% that there is the Federation of the Deaf and Hard of Hearing, and 1 respondent cited the existence of creative workshops, metropolitan Association to help people with disabilities and daycare for people with special needs.

Cross-referencing of data about the organization for the deaf and hard of hearing in the place of residence and academic achievement (Table 3), the results of the t-test for examination of the significance of differences in performance at school of the deaf and hard of hearing students regarding the presence of active organizations for the deaf and hard of hearing in the environment in which they live showed that there are statistically significant differences in academic performance of students in relation to the presence of active organizations for the deaf and hard of hearing in the place where students live ($p = 0.012$).

Discussions

The attention of researchers has focused on the impact factor of the wider social context on the academic performance of students just before the end of the last century. Important evidence of the impact of cultural, environmental, class differences on academic performance are the results of previous studies on the correlation between wider social context and academic performance (Malinić, 2009). It is pointed out that the key cause of academic failure is deprivation caused by inadequate social and emotional development (Morison-Gutman, Sameroff and Cole, 2003).

Rural and urban areas also differ according to the general level of culture, educational level of the population, moral values, economic elements, which significantly affect the construction of certain forms and patterns of behaviour, as well as achievement and underachievement at school (Karchmer and Mitchell, 2003). The results of foreign research show that children from neighbourhoods where the population lives without qualifications usually do not graduate from school, that children from isolated rural settlements after primary education encounter difficulties in continuing their education (Harvey and Kentish, 2010). Research carried out in our country shows that the success of the students in more urban areas is better, while the number of students with underachievement increases in the poorer areas, that is why students from Belgrade schools show better academic performance on a test of knowledge than students from other, smaller cities, suburban and rural areas (The first research problem of this research was to examine the difference in the academic achievement of the deaf and hard of hearing students regarding the type of environment in which students live. The significance of the correlation between respondents from different backgrounds about academic achievement was checked by analysis of variance of non-repeated measures (Table 1). The analysis of the obtained results showed that there

was no statistically significant difference in performance at school between pupils from cities, towns, and rural students ($p = 0.870$). One possible explanation of the results obtained is given in terms of there is a significant number of students included in the sample who use boarding school accommodation. Thus, taking into account the time that students spend in school and boarding school about the time they spend in their place of residence (in the real environment), we can evaluate the obtained result as expected. Besides that in the modern age, demographic, social and economic social changes have led to mitigating the differences between rural and urban areas that had previously existed (Kamal and Bener, 2009). Today's availability of modern information technologies, the use of the Internet provides access to various content and information for both urban and rural residents. The findings of this study are consistent with the results of some similar studies in our country which show that student's achievement is significantly affected by the educational level of parents rather than the type of environment in which the students live (Klarin, 2006).

Another research problem was focused on understanding the correlation between the existence of cultural institutions in the environment and academic performance. Previous research has shown that cultural and environmental differences, as well as social class significantly affect student achievement, and this research looked at possible differences in the academic performance of the deaf and hard of hearing students regarding some potentials of the social environment in which they live. The existence of a difference in the academic achievement of the deaf and hard of hearing students regarding the potentials of the social environment in which they live was examined by a t-test for independent samples. The results showed that there were no statistically significant differences in academic performance between children in whose environment there are and in whose environment there are cultural institutions present (Table 2).

The third research problem was to examine whether the presence of the deaf and hard of hearing organizations in the place of residence of the deaf and hard of hearing students correlates with the academic performance of the deaf. Analysis of the obtained results of the t-test shows that there are differences in performance at school between students in the environment where there are or there are no active organizations for the deaf and hard of hearing present, these two groups (Table 3). The results confirm the role played by organizations for the deaf and hard of hearing in the functioning of the everyday life of the deaf and hard of hearing students and their family. These are places where families can find support, get directions to educate their children, and for children later in life, a place of cultural and social development. The significance of the obtained results is certainly in considering the possibilities for improving and strengthening the functioning and cooperation of deaf and hard of hearing organizations with schools and families of deaf and hard of hearing students to improve and prevent poor academic results. Furthermore, the existence of organization for the deaf and hard of hearing contribute both cultural and pedagogical level of environment and family, which does not only affect academic achievement, as well as their abilities but also the cultural and social deprivation prevents students to fully develop and use their abilities, intellectual as well as social (Reed, Shirin and Kreimeye 2008; Roksandić and Kovačević, 2016b).

Based on the previous analysis, the results of research and discussions, the analysis of formulated hypothesis for this study shows that the initial assumption of the correlation between the indicators of the wider social context and academic achievement of the deaf and hard of hearing students are partially confirmed, and partly discarded.

Conclusions

The structure of factors in a wider social environment, as well as their quality, is reflected in the functioning of the family, its cultural values and behaviour patterns, but also in the functioning of the society as a whole, and it is necessary to review in their correlation all aspects of the functioning. Thus, achieving success in school is conditioned by a large number of factors that can have a positive, stimulating, but also a negative, inhibitory effect. On one hand, there are the intellectual abilities of the child, and on the other hand, everyday life with the family and the influence of the family and the culture in which it belongs. Based on a review of the literature and an analysis of several realized types of research of school achievement of deaf and hard of hearing students, the results of this research are somewhat expected.

The results showed that as a specific indicator of academic performance in a group of factors of wider social context distinguished by the presence of the organizations for the deaf and hard of hearing students. The existence of such institutions is extremely important for the families of the deaf and hard of hearing students. These are places where they have the opportunity to meet other families, exchange experiences, get help in situations when they need it, resolve dilemmas, dissipate prejudices. For the deaf

and hard of hearing students, the existence of such organizations means a dignified social life, a place to make friendships to improve communication skills.

It is important to point out that only one specific factor cannot be a risk factor for poor academic achievement of the deaf and hard of hearing students. The correlation of several factors with the academic performance of the deaf and hard of hearing students is confirmed by similar research (Gutman, Sameroff and Cole, 2003; Ellis and Hugues, 2002). Accordingly, it cannot be sufficient to focus on reducing risk by focusing on only one factor. It is very important to recognize the importance of a comprehensive view of academic performance. Furthermore, effective academic failure prevention programmes need to address multiple disruptive factors simultaneously, with an individualized and holistic approach to each student following his or her abilities, capabilities and motivation.

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Conflict of interests

The authors declare no conflict of interest.

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The Relationship Between the Strategies of Transferring the Meanings of Information Messages and the Meaning-of-Life Orientations of Social Networks Users

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Abstract: The aim of the work is to identify strategies for transferring the meanings of information messages used by students in social networks, and how these strategies are related to the students' meaning-of-life orientations. The study was conducted with the use of a theoretical method, as well as a survey, a content analysis, an expert method, a psychodiagnostic method, descriptive statistics, and also nonparametric tests, the Kruskal-Wallis H-test and Spearman's rank correlation method. Among modern youth, social networks are one of the most common sources of obtaining and distributing information. Therefore, it is important to find out what strategies for transferring the meanings of information messages are used by respondents. The expert method and content analysis allow us to identify 6 strategies for transferring meanings that students use in communication when transferring the meanings of various publications in social networks. Further analysis shows that each strategy has its own features of the meaning-of-life orientations components and significant relationships between the strategies of the meanings transferring and the components of the meaning-of-life orientations of social networks users are also revealed. Thus, we can conclude that the features of the transferring of meanings are significantly influenced by the meaning-of-life orientations, in particular, goals in life. Thus, the study emphasizes the importance of the semantic communication in social networks, the results of which can influence the effectiveness of communication, training, and the interaction among users.

Keywords: social networks, transferring of meanings, meaning-of-life orientations, the Internet.

Introduction

In modern psychology, there is a fairly extensive layer of research aimed at studying the various psychological problems of communication and the interaction among users in social networks.

As shown in the works (Haythomthwaite and Wellman, 1998; Butler, 2001), it is possible to divide social networks into informational and communicative: in informational ones there is an exchange of knowledge and the development of information, in communicative – the development of communication of participants. Although, it is possible to talk about the integration of social networks that perform an informational and communicative function. Fuhse (2009) identifies two levels in social networks: the first is represented by communication in the interaction processes, the second includes the meanings formed by participants in the social network.

A sufficient amount of research has been accumulated in psychology showing the positive and negative aspects of the dissemination of information in social networks. E. M. Rogers (Rogers, 2003) studied the spread of innovations and the influence of interpersonal relations on this process. M. Papagelis et al. (Papagelis, Bansal and Koudas, 2009) found that the dissemination of information among network participants increases their activity and affects the formation of their social significance. M. S. Bezbogova studied the socio-psychological mechanisms of the formation of social attitudes in social networks and proved that the formation of social attitudes occurs through accentuated needs satisfied in social networks (Bezbogova and lonceva, 2016). I. S. Luchinkina revealed that the user's communicative behavior depends on the type of a cognitive distortion (Luchinkina, 2018). E. Klemenova, M. Ereshchenko

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(Klemenova and Ereshchenko, 2020), studying the discourse of the social networks users, identified communicative strategies. At the same time, the authors argue that among the strategies, one can distinguish evaluation and forecasting strategies that have an impact on other users.

The problem of communication as one of the aspects involves the study of the transferring of the meanings of information messages in social networks.

In science, the issues of dynamics, transformation and transferring of meanings are raised and investigated. In the theory of communication V. E. Cronen (Cronen, 1995), the problem of the dynamics of meanings is considered, meaning is perceived as a phenomenon that is constantly changing in communication. A. Bard, J. Söderqvist, analyzing the features of communication in a network society, showed that in a network society, meanings are formed in the form of network messages. At the same time, they pay attention to the discrepancy between the transmitted meaning and the acquired meaning (Bard and Söderqvist, 2002).

Although the problem of transferring of meanings is relatively new in psychology, there are studies that reveal various aspects of transferring of meanings: in communication (Ivanova, 2014; Kibrik, 2018), in training (Abakumova et al., 2019; Suroedova, Tushnova and Belousova, 2020; Belousova, 2015), in professional activity (Hodgkinson and Sparrow, 2002), in advertising (Belousova and Stošić, 2019; Belousova, 2021; Miller and Allen, 2012).

The problem of transferring of meanings is most developed in the psychology of education. E. Y. Artemyeva together with I. B. Khanina showed the change of meanings in the educational process, their dynamics is associated with the assignment of transferred meanings (Artemyeva, 1999). I. V. Abakumova and L. C. Kagermazova, considering the teachers' activity through semantic communication, which is understood primarily as the transferring of meanings, distinguish various semantic techniques used by teachers (Abakumova and Kagermazova, 2008). In a comparative study of school teachers' educational techniques of different generations, Belousova revealed the peculiarities of the implementation of meaning transfer in the educational process of different generations of teachers (Belousova, 2015). B. Meskhi et al. (Meskhi, Ponomareva and Belousova, 2019) showed the representation of the transfer of meanings as a component of the pedagogical thinking of primary, secondary and high school teachers. A. K. Belousova and E. A. Suroedova (Belousova and Suroedova, 2010), studying the features of communication and the interaction of students in full-time and distance learning, identified various strategies of meaning transfer in students' communication when solving professional problems. These strategies are considered by the authors through the ratio of verbal and non-verbal means of communication. E. Suroedova et al. (Suroedova, Tushnova and Belousova, 2020) considers the conditions for the development of abilities to convey meanings as a component of the development of communicative competencies.

Conducting a psychological analysis of management, G. P. Hodgkinson and P. R. Sparrow (Hodgkinson and Sparrow, 2002) present the features of strategic thinking, among which such semantic processes as the sense production and the sense transmission are distinguished. Meaning transfer is defined by them as the process of managers' influence on the meanings that other people have.

In studies (Belousova and Stošić, 2019; Belousova, 2021), it was highlighted that students perceive advertising posters depending on the dominance of the system of life meanings. The authors conclude that the transferring of the meanings of advertisement takes place if the content of advertisement corresponds to the respondents' value-semantic features.

Miller F. M. and Allen C. T. (Miller and Allen, 2012), considering the technologies of the meaning transferring of a celebrity in advertising, showed that the transfer of meaning manifests itself as an update of the buyers' belief system, causing them to change their attitude to the brand. At the same time, the authors confirmed in their study that, in accordance with the ideas of McCracken (McCracken, 2005), the mechanism of transmission of macro-meaning manifests itself at the micro level as a process working through indirect beliefs.

A. D. Husid (Husid, 2011) conducted a study of the peculiarities of the meanings perception of animated series by young people and found the existence of ethno-cultural differences, and also showed that the decoding of meanings is determined by the age and socio-psychological characteristics of the respondents.

It is possible to find a few works aimed at analyzing the features of the transferring of meanings in the Internet interaction. As a part of the information security study, P. N. Ermakov, I. V. Abakumova, A. G. Stejnuch emphasize the role of semantic technologies in information interaction, since they influence the transformation of the value-semantic sphere of social networks users (Ermakov, Abakumova and Stejnuch, 2018).

In recent years, it has been shown that there are differences in the structure of value orientations of the generation Z students (Pishchik and Spivachuk, 2020), specific features of the value-semantic sphere

of the technical specialties students (Nikolenko, Zheldochenko and Lomova, 2020), with different attitudes to the past (Komerova et al., 2021), having differences in the sovereignty of the individual (Belousova et al., 2015) are highlighted. At the same time, there are classical works showing that the value-semantic sphere of a person in adolescence is structured, built up in a hierarchy. And personality is revealed in the ability to determine life goals, to realize the meaning and goals of one's own existence (Maslow, 1987; Rubinstein, 2002).

We believe that, on the one hand, the value-semantic sphere of young people, like any system at the stage of formation, is more susceptible to the external influence, as it is shown in the works (Maslow, 1987; Rubinstein, 2002). This is especially true for the situations where various ideas are well adapted and implemented in frequently repeated content that meets youth trends, which is confirmed in several works (Ermakov, Abakumova and Stejnjuh, 2018). On the other hand, since social networks users have the opportunity to be active creators of various kinds of content, the personal characteristics of young people are manifested through the information messages they broadcast. First of all, communication is influenced by the formed value and semantic features of the young person's personality, which relate to the highest structural levels of the regulatory system of an individual social behavior.

According to the views of A. Adler, the direction of a person's actions and motives is determined by the purpose of his life, and by understanding the purpose of life, it is possible to understand the hidden meaning of actions that are not really separate, but the parts of one whole (Adler, 2020).

In his works, Buhler reveals the problem of the meaning of life and believes that the presence of freedom of choice and life goals indicate the desire of the individual to materialize the meaning of life and it is a manifestation of freedom and inner activity of the individual. At the same time, life goals should be adequate to the nature of the individual and should lead to the realization of its capabilities and abilities (Buhler, 1964).

According to Frankl, meaning is the integrating factor of human life; the primary life force. The meaning is unique and specific for everyone (Frankl, 2006).

B. S. Bratus believes that the need to search for the meaning of life inherent in every human being, and satisfaction leads to the normal functioning of an individual (Bratus, 1988).

I. S. Kon as a plan for the establishment of the meaning of life calls integrity way of life - the need to "think of life not as a series of random, disconnected events, but as a holistic process that has a definite direction, continuity and content" (Kon, 1999).

In the works of D. A. Leontiev, the meaning of life is understood as "an energy characteristic of the semantic sphere, a quantitative measure of the degree and stability of the orientation of an individual's life activity to some meaning". What gives meaning to life can lie in the future (in the form of a goal), and be experienced in the present (a sense of fullness and saturation of life), and in the past (a sense of satisfaction with the results of a life lived) (Leontiev, 2019).

In our study, the task to investigate the relationship between the features of the meaning-of-life orientations and the strategies for transferring the meanings of social networks users' information messages is set.

There are various interpretations of the term strategy in psychology. In one of the influential psychological dictionaries, several meanings are indicated, depending on the subject field (Colman, 2001). The study examines the strategies of transferring of meanings, which are the components of a more general communicative strategy. In communication practice, T. A. Van Dijk considers a strategy rather as a plan of actions aimed at achieving various goals. At the same time, he finds a difference between the main (cognitive and semantic) and secondary strategies (Van Dijk, 2018).

In this case, focusing on the ideas of T. A. Van Dijk, we propose to consider semantic strategies (as a component of communication), the basis of which is the perception and transferring of the meanings of information messages. We assume that one of the criteria for identifying strategies for transferring the meanings of information messages in the respondents' comments in social networks is the initiation of new meanings in the commented message. In this case, it is possible to simulate the appearance of the following strategies for transferring the meanings of information messages. The received information is perceived by the respondent, fits into his value-semantic sphere, than included in the content of his knowledge in this subject area, causes activation of his attitude related to motives, goals, the meaning-of-life orientations, personality characteristics, which are expressed in the comments of these respondents. Therefore, the comments of the respondents in social networks reveal possible alternative strategies for the transferring of meanings, the classification of which is based on the actualization of new meanings in the strategy. In theoretical terms, the following strategies can be distinguished: sense-acceptance – assimilation of the perceived meaning, as it is; meaning-formation – initiation of a new meaning based on the perceived information; sense-rejection – rejection and negative attitude to the perceived information;

evaluation - the evaluation activity of respondents dominates in the comments, which marks the beginning of the initiation process that has not yet found verbal embodiment; empathy – the respondent is emotionally involved in the content of the perceived text; withdrawal - the respondent performs various actions that show an unwillingness to comment on messages.

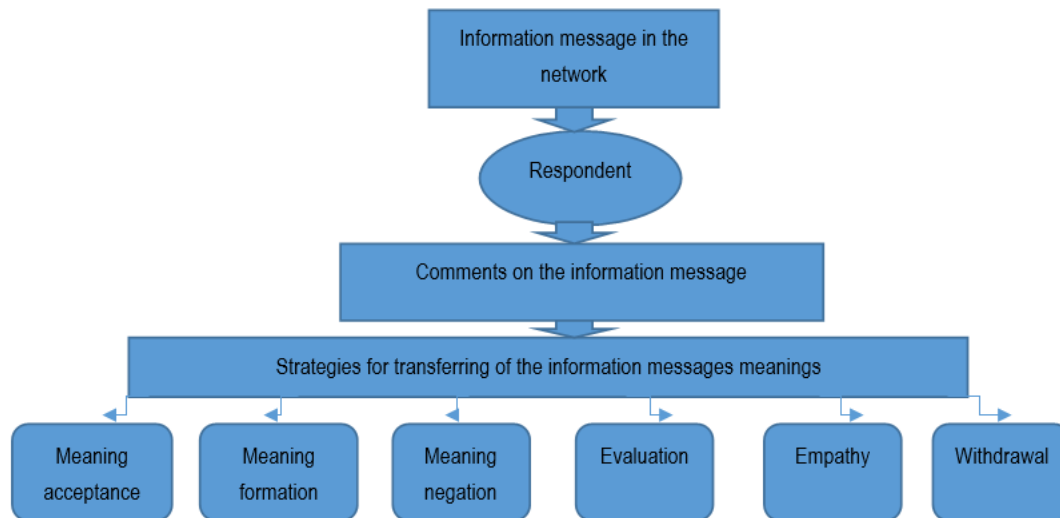


Figure 1. Model of strategies types for transferring of the information messages mening

The study is based on the following assumptions that: firstly, the VKontakte social network users who have different strategies for transferring of information messages meanings may differ in the severity of the components of the meaning-of-life orientations; secondly, there may be relationships typical to each strategy with the components of the meaning-of-life orientations.

Materials and Methods

The sample consists of 85 people - active users of social networks who are at the same time students of various specialties of the Don State Technical University (Rostov-on-Don). The age of the respondents differs from 18 to 24 years.

The author's questionnaire for diagnosing activity in social networks, the test "Meaning-of-life orientations" by D. A. Leontiev (Leontiev, 2000), the method of expert assessments, content analysis of a text are used in the study. The method of "Meaning-of-life orientations" consists of the following scales: The general indicator of the meaningfulness of life, Goals in life, the Process of life, the Effectiveness of life or the satisfaction with self-realization, the Locus of I-control, the Locus of life-control. This technique is aimed at diagnosing the features of the semantic sphere of a person associated with determining the localization of the meaning of life: in goals, in the process, as a result.

For the mathematical analysis of the results, the following methods are used: descriptive statistics, chi-square criterion, nonparametric Kruskal-Wallace criterion, Spearman's rank correlation method.

The study goes through the following stages:

1. Respondents were asked to answer the questionnaire questions concerning gender, age, preferred social networks and the time spent in them. Since the focus of the study did not involve the study of the Internet addicts, only the data of those users whose daily time in social networks did not exceed three hours are taken into account when processing the results.

2. The respondents completed the test "Meaning-of-life orientations" by D. A. Leontiev, and then they were presented with five publications on the social network "VKontakte" for review. Respondents were asked to choose several publications (posts) from them on any basis and leave their comments under them. The publications were selected in a non-random way: by means of the "SmmBoX" program, the most commented publications from various social network communities were selected within the last two months before the study, with the orientation that the number of likes and comments reflects the importance of the topic being raised for users.

3. Experts were invited to analyze the respondents' comments. The group of experts consisted of five psychologists who owned the conceptual apparatus of the semantic sphere of the individual and who study the Internet in terms of psychology. The average age of experts is 40 years. The experts were

faced with the task of analyzing the respondents' comments and using content analysis to determine their semantic content.

Results

A qualitative analysis of the comments made by a group of experts allowed us to identify six main strategies for the transferring of meanings in the presented sample: 1. sense acceptance - the respondents accept the ideas transmitted in the publication; 2. sense formation which is based on what they have read, the respondents produce their own ideas and interpretations; 3. evaluation - the respondents make an evaluative judgment regarding the publication; 4. empathy - the respondents express indifference, emotional involvement in the content of the publication; 5. sense rejection - the respondents disagree with the content of the publication; 6. withdrawal - the respondents demonstrate unwillingness to take part in the discussion.

The frequency analysis showed that the strategies for the transferring of meanings are distributed from most to least as follows: meaning formation (38.9%), evaluation (21.6%), withdrawal (12.6%), sense rejection (10.5%), sense acceptance (9.5%), empathy (6.8%). Statistics analysis of the differences in the frequency of distribution of the strategies for meanings transferring from publications was carried out by means of the chi-squared 2-criterion. The results obtained are presented in Table 1 and Table 2.

Table 1
Conjugacy table

Types of strategies		Publication					Total	
		1	2	3	4	5		
Meaning acceptance	Frequency	2	8	4	1	3	18	
	% The strategies of transferring the meanings	11,1%	44,4%	22,2%	5,6%	16,7%	100,0%	
	% Publication	6,1%	14,0%	9,5%	3,8%	9,4%	9,5%	
Withdrawal	Frequency	5	8	3	3	5	24	
	% The strategies of transferring the meanings	20,8%	33,3%	12,5%	12,5%	20,8%	100,0%	
	% Publication	15,2%	14,0%	7,1%	11,5%	15,6%	12,6%	
Meaning formation	Frequency	22	18	14	7	13	74	
	% The strategies of transferring the meanings	29,7%	24,3%	18,9%	9,5%	17,6%	100,0%	
	% Publication	66,7%	31,6%	33,3%	26,9%	40,6%	38,9%	
The strategies of transferring the meanings	Evaluation	Frequency	3	12	13	6	7	41
		% The strategies of transferring the meanings	7,3%	29,3%	31,7%	14,6%	17,1%	100,0%
		% Publication	9,1%	21,1%	31,0%	23,1%	21,9%	21,6%
Empathy	Frequency	1	1	1	8	2	13	
	% The strategies of transferring the meanings	7,7%	7,7%	7,7%	61,5%	15,4%	100,0%	
	% Publication	3,0%	1,8%	2,4%	30,8%	6,3%	6,8%	
Meaning negation	Frequency	0	10	7	1	2	20	
	% The strategies of transferring the meanings	0,0%	50,0%	35,0%	5,0%	10,0%	100,0%	
	% Publication	0,0%	17,5%	16,7%	3,8%	6,3%	10,5%	
Total	Frequency	33	57	42	26	32	190	
	% The strategies of transferring the meanings	17,4%	30,0%	22,1%	13,7%	16,8%	100,0%	
	% Publication	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	

Table 2
χ² Criteria

	The value	df	Asymptote. significance (2-sided)
Pearson's chi-squared test	51,952 ^a	20	,000
likelihood ratio	46,393	20	,001
Linear-linear connection	1,624	1	,203
Number of valid observations	190		

According to the results obtained, the strategies for the transferring of meanings differ significantly in publications with various orientations ($\chi^2=51.952$; $p = 0.000$).

The next task was to find the answer to the question how the system of meaning-of-life orientations differs among young social networks users who apply different strategies for the meanings transferring.

For this purpose, an analysis was carried out with the use of the Kraskel-Wallis H-test (Table 3), which showed the presence of significant differences in the following components of the respondents' meaning-of-life orientations: Goals in life, Locus of life control, Meaningfulness of life; as well as the presence of a tendency to significant differences in the following components: the Process of life, the Result of life.

Table 3

The average values of indicators of life-meaning orientations in Respondents with different strategies for transferring the meanings of information messages

Strategies for transferring meanings/Life-meaning orientations..	Goals in life	Locus - control of life	The meaningfulness of life	The process of life	The result of life
Sense acceptance	32,5556	31,6667	105,7222	29,6667	25,9444
Withdrawal	31,0417	31,6667	103,0417	31,3333	26,25
Meaning formation	27,6892	28,1892	92,1892	26,5946	23,1351
Evaluation	32,6341	29,8049	102,634	29,1707	25,9756
Empathy	26,7692	25,1538	76,4615	26,6154	21,8462
Kruskal-Wallis H test	29,2	29,6	94,45	26	23,95
df	16,576	14,859	14,521	11,256	11,031
p	5	5	5	5	5

The next step of our research was to study the relationships between various strategies for transferring of the information messages meanings and the components of the meaning-of-life orientations (Table 4).

Table 4

The relationship between the strategies of the meanings transferring and the respondents' meaning-of-life orientations

The strategies of the meanings transferring / Meaning-of-life orientations	Meaning acceptance	Withdrawal	Meaning formation	Evaluation	Empathy
Goals in life			,197** ,006	-,194** ,007	
The process of life		-,164* ,024			
The result of life			,154* ,034		
Locus of I-control	-,146* ,044		,151* ,037		
Locus - control of life		-,161* ,026			,171* ,018
Meaningfulness of life	-,148* ,042				,160* ,028

As the correlation analysis showed, the lower the indicators of the “I” locus of control ($r_s = -0,146$; $p = 0.044$) and the meaningfulness of life ($r_s = -0,148$; $p = 0.044$), the more likely the respondents are to choose a sense-acceptance strategy. This strategy is typical for students who have a rather low level of meaningfulness of life, and a semantic choice, the perception of themselves as the master of life are not characteristic for them.

The lower the indicator of the life process ($r_s = -0.164$; $p = 0.024$) and the locus of life control ($r_s = -0.161$; $p = 0.026$), the higher the probability of respondents to choose the withdrawal strategy. Thus, the withdrawal strategy is rather typical to those students who do not show satisfaction with life and do not feel like its masters.

With an increase in the values of the indicators of goals in life ($r_s = 0.197$; $p = 0.006$), the process of life ($r_s = 0.140$; $p = 0.054$), the result of life ($r_s = 0.154$; $p = 0.034$), the “I” locus of control ($r_s = 0.151$; $p = 0.037$) and the meaningfulness of life ($r_s = 0.141$; $p = 0.053$), the probability of using a meaning-forming strategy by respondents increases. The results obtained indicate that students with this strategy focus on plans-building, strive for self-realization, they are interested in life itself, they are satisfied with its results, considering themselves as the masters of their life, their life is characterized by meaningfulness.

The probability that the respondents choose an assessment strategy is higher, if the indicator of goals in life are lower ($r_s = -0,194$; $p = 0.007$). The assessment strategy is observed among students who are not distinguished by purpose-fulness and the desire to form goals for the future.

The empathy strategy is more likely to be chosen if the indicators of the locus of life control ($r_s = 0.171$; $p = 0.018$) and the meaningfulness of life are higher ($r_s = 0.160$; $p = 0.028$). This strategy characterizes students who have a belief in the ability to manage their lives, a high level of general meaningfulness of life.

There were no significant connections with the meaning-negation strategy.

Discussions

The conducted research showed the presence of various strategies for the transferring of information messages meanings, which were found among the respondents of the “VKontakte” social network.

The obtained data shows the dominance of the meaning formation strategy, which clearly prevails over all the other strategies (38.8 %). It seems that this situation reflects the individual nature of the respondents, due to the fact that each person interprets the received messages, forms new meanings of the received messages. The strategy of meaning formation is confirmed in the works of other authors, who mainly concentrate their research activity on the identification of various types and types of meaning formation. Abakumova et al., (Abakumova et al., 2018) defines two strategies of meaning formation: developmental and adaptive. S. V. Gurov (Gurov, 2012) proposed strategies of meaning formation of students related to the peculiarities of their professional orientation: self-attitude, attitudes to life and profession, communication. A. B. Savchenko (Savchenko, 2012) identifies communicative strategies of teachers: manipulative and conventional, which are based on different ways teachers transfer their meanings.

The second place in the representation of strategies is occupied by the “Evaluation” strategy (21.6%). It seems that the dominance of this strategy corresponds to the general characteristic of the human psyche, which integrates the reflection of the world and the attitude to it (Rubinstein, 2002). From the point of view (Belousova, 2010), the meanings formed by a person are presented in the form of assessments, but have not yet been verbalized by a person. Therefore, it can be assumed that the respondents have new meanings in the comments which are in the form of ratings, which young people have not yet been able to reflect and express in verbal form. It can be assumed that these meanings can exist in a non-verbalized form, as in the situation of an ordinary direct interaction face to face. Similar studies already exist. Thus, in a study (Holtgraves and Robinson, 2020), it was found that in the conditions of the digital interaction, emoticons make it easier to understand the meaning.

The “withdrawal” strategy (12.6%) is the third most pronounced and can mean informational behavior aimed at not accepting information. It seems to us that the reasons for this behavior and this strategy of meanings transferring can be very diverse. As shown in the work (Ermakov, Abakumova and Osipova, 2016), in the educational environment, when students are faced with a contradictory, frustrating situation, they may have semantic barriers, in response to which students can “walk away” from solving problems and contradictions. In studies of a potentially problematic situation of interpersonal thinking (Belousova and Vyshkvyrkina, 2015), the following strategies of “avoiding” the solution of a contradiction were identified: according to the criterion of activity - “active” and “passive”; according to the criterion

of acceptance of the situation -"denial" and "acceptance"; according to the criterion of orientation - "aggressive" (focus on another) and "mercantile" (focus on oneself).

Lower figures were obtained for the "Sense-negation" strategy (10.5%). Meaning-denial means that a person denies the meaning extracted from the text of an information message. He actively rejects it, which, in our opinion, indicates the potential for the formation of new meanings. Similar values were obtained for the "Sense Acceptance" strategy (9.5%), which means that the respondent assimilates the meaning of the message transmitted and embedded in the information.

The lowest values fall on the strategy - "Empathy" (6.8 %), which emphasizes the emotional acceptance of information. One can even assume that in this case there is a certain version of the acceptance of meaning, which, however, exists in an emotional form, in the form of empathy and empathy for the context of an information message. And in this case, the situation also manifests itself when the respondents have not been able yet to reflect and express their meanings. In the study (Belousova and Belousova, 2020), the dominance of altruistic and communicative emotional experiences was found in psychology students when solving mental problems. Empathy can also be attributed to the sphere of communicative and altruistic experiences, and then it becomes clear that the dominance of the strategy of meanings transferring based on empathy as a manifestation of one of the dominant emotional states typical to psychologists. These results are also consistent with studies (Nerdrum, 1997), which showed a fairly high level of empathy among students of the Faculty of Social Work.

The strategies of meaning transferring highlighted in our study are in some respects consistent with the list of communicative strategies presented by various authors: for example, the "Evaluation" strategy existing in our classification is highlighted in the work (Klemenova and Ereshchenko, 2020). P. B. Floreddu and F. Cabiddu (Floreddu and Cabiddu, 2016) identified communicative strategies for brand promotion - egocentric, conversational, selective, openness, secret and supportive. Although the authors do not address the issues of the transferring of meanings, but in general they point at the development of information in social networks through the use of various psychological methods of influencing the audience. The work (Martin and MacDonald, 2020) emphasizes the role and importance of the means of personal, private, interpersonal communication, including stories, selfies, various personal photos and comments for the intensification of scientific communication. However, existing studies do not yet reflect the specifics of the presentation and formation of the meanings of messages in social networks.

The analysis of the severity and interrelation of various components of meaning-of-life orientations with strategies for the transferring of meanings (according to Table 3 and Table 4) allows us to assert that users who use assessment and sense-acceptance strategies see their Goals in life and plan their future best, then users with strategies of withdrawal, sense-denial, sense-formation, and users with an empathy strategy who are more inclined to live today or yesterday.

The values of the "Locus of life-control" scale indicate that users with strategies of meaning acceptance and withdrawal most rely on their ability to control their lives. They followed by users using strategies of evaluation, meaning-denial, meaning-making and empathy, who tend to see the hand of fate in what is happening and are convinced that life is beyond their control.

The general indicator of the meaningfulness of life is characterized by the following distribution of user groups: the highest indicator of the meaningfulness of life is recorded among users with prevailing strategies of sense acceptance, withdrawal, evaluation; the level of meaningfulness of life is lower among users who apply strategies of sense denial, sense formation, empathy.

In accordance with the indicators on the "Process of Life" scale, users who apply strategies of withdrawal and sense acceptance see their life as rich and interesting, users with strategies of assessment, empathy, sense formation and sense negation represent their life somewhat less bright.

The values on the "Result of life" scale indicate that the satisfaction of the life of users using various strategies for transferring meanings is felt by them as follows: users with the strategies of withdrawal, evaluation, sense acceptance evaluate the productivity of the lived life segment above all; users with the strategies of sense denial, sense formation and empathy evaluate the effectiveness of their life less positively.

The results obtained are consistent with studies of the human semantic sphere (Komerova et al., 2021) and strategies of meaning formation (Godunov et al., 2017; Gurov, 2012; Zorina and Zelenov, 2016; Savchenko, 2012), in which the expression of components of life-meaning orientations was found in the implementation of various strategies of meaning formation. In particular, the existence of interrelations between the indicators of the goal in life and the strategy of meaning formation by students was shown in the work (Gurov, 2012). In the work (Godunov et al., 2017), it was revealed that one of the main markers of the strategy of meaning formation is the indicator of the meaningfulness of life. E. V. Zorina showed that high values of indicators: the meaningfulness of life, the locus of l-control, the locus of life-control, goals

in life are characteristic of teachers who seek to use semantic techniques in pedagogical activity (Zorina and Zelenov, 2016).

Conclusions

Thus, on the basis of the conducted research, some generalizations can be formulated. First of all, we can say that social network users have identified strategies for the transferring of meanings when commenting on information messages: meaning acceptance, meaning formation, evaluation, empathy, meaning denial, withdrawal. The selection was based on the criterion - the initiation of new meanings in the commented message. According to the frequency of use, the strategies were distributed in the following sequence: meaning formation, evaluation, withdrawal, meaning rejection, meaning acceptance, empathy. Thus, the most pronounced is the strategy of meaning formation, the least pronounced is the strategy of empathy.

The highlighted strategies for the meaning transferring are shown by a variety of possible behavioral, in this case, verbal patterns demonstrated by respondents in communication in social networks. We believe that the selected strategies make up a combination typical to every person, but the actualization of a specific strategy can be determined by various predictors associated with the communicative situation, with the content of information, its significance for a person, as well as a range of personal, value, semantic, cognitive and other possible psychological determinants that require separate research.

The study identified the relationships that exist between the components of life-meaning orientations and the strategies for the transferring of meanings. It was shown that the greatest number of connections exists between the strategy of meaning formation and the components of the Goal of life, the Result of Life, the Locus of I-control. Two interrelations were revealed between the strategies: withdrawal, sense-acceptance, empathy - and other components of life-meaning orientations: the process of life, the Locus of Life-control, the Meaningfulness of life. The evaluation strategy has one relationship with the Purpose of life, meaning-negation has no relationships. Thus, in our opinion, the study shows that there are close relationships between the semantic sphere of the respondents and the strategies for the transferring of meanings that they implement in comments. It seems that this direction requires further research expanding the range of semantic and value characteristics of the respondents.

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Conflict of interests

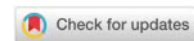
The authors declare no conflict of interest.

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The Way of Learning Preserved in The Structure of Individual Experience Shapes Task-Switching: Implications for Neuroscience and Education

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Abstract: Task switching is a behavioral phenomenon that serves as a tool for assessment of individual cognitive abilities that becomes especially essential in our multitasking milieu. Factors of task-switching include cognitive load and cognitive effort, mostly derived from task difficulty, as well as age and practice. The analysis of brain activity on the level of single neurons shows that the activations that contribute to task performance and switching differ with respect to the protocol of learning the alternated tasks. We argue that task switching is affected by the history of learning and in turn it changes the structure of individual experience. On this basis we outline perspectives of task switching studies in the fundamental field of long-term memory and applied field of education and therapy.

Keywords: task switching, history of learning, single-neuron activity, memory reorganization, systems.

Introduction

The necessity to change behavior (e.g., to interrupt the current one and switch to another) is usually perceived as a burden, because getting back to where you formerly stopped requires effort that would not be made without the interruption. The analysis of the effort informs several fields of research that acquire more practical value along with the spread of digital communication technologies. First, task switching is a diagnostic tool that allows to assess individual status of behavioral control (cognitive flexibility) along with its relation to brain activity and potential treatment (e.g., [Dajani and Uddin, 2015](#); [Kozlovsky et al., 2012](#)). Individual traits related to switching can also be assessed with self-report questionnaires ([Umemoto and Holroyd, 2016](#)).

Second, task switching is considered as a tool to study the components of putative cognitive processes via variation of task difficulty, age of participants, proficiency of task performance etc. ([Arrington et al., 2003](#); [Calcott and Berkman, 2015](#); [Velichkovsky, B. B. and Ziberova, 2021](#); [Wylie and Allport, 2000](#)). The effort that is made for behavioral change is usually manifested in a decrease of speed and accuracy in trials that follow task switching compared to trials where the task is repeated, termed the switch costs. The correlates and determinants of the switch costs reveal the processes that underlie successful adaptation of behavior.

The present review is aimed at highlighting several consequences of the third aspect of the task switching phenomenology – that of switching as a separate task that has to be acquired by learning – an aspect disclosed from the framework of cognitive plasticity ([Mercado, 2008](#)). We apply theoretical bases of systems psychophysiology ([Alexandrov, 2015](#); [Alexandrov et al., 2018](#); [Shvyrkov, 1990](#)) and the results of experimental studies to analysis of task switching as a form of memory and formulate potential implications that can be verified in future basic and applied research. This approach allows to describe changes in the systemic structure of behavior during the formation of a new action, to compare these structures between alternated actions, as well as to account for the influence of the learning history on this structure.

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Single-neuron activity and the structure of individual experience

The analysis of single-neuron activity during task performance reveals task-related neurons and allows to assess the “sameness” of events for a given neuron. For example, recording of neuronal activity in human hippocampus (e.g., [Quiroga et al., 2005](#)) showed that some neurons increased firing upon presentation of images or sounds that point to the same object independent of the way of reference (different pictures of celebrities, their written or spoken names). Since these events are indistinguishable on the basis of activity of such neurons, the latter are considered to maintain the identity of an item in memory ([Rey et al., 2020](#)).

Importantly, increased firing of the same neuron accompanied viewing of Bahai Temple and Sydney Opera images in those participants who did not distinguish these two buildings, and was in different neurons in those who did ([Quiroga et al., 2005](#)). In other words, the sameness or difference derived from the task-related activity of the neurons reveals identity of subjective categories, or differentiation of subjects' interactions with the environment (see also [Shvyrkov, 1990](#)). Distinctions between subjective units have been also made on the basis of the analysis of single neuron activity ([Alexandrov et al., 1997](#); [Shvyrkov, 1990](#)) recorded from rabbits' cingulate cortex ([Alexandrov et al., 1990, 2001](#)), motor cortex ([Aleksandrov et al., 2005](#)), and other structures, including hippocampus ([Alexandrov et al., 2013](#)). Consequently, although the concept cells are attributed to hippocampus, and not to the cortex ([Rey et al., 2020](#)), the analysis of such “identity” is possible for neurons in other structures. This analysis is based on the theory of functional systems ([Anokhin, 1974](#)) where function is defined as achievement of a result – an adaptive organism–environment interaction – and on systems–evolutionary approach ([Shvyrkov, 1990](#)) that considers learning as formation of a new functional system via an evolution-like process of selection of neurons and their specialization in relation to a system ([Shvyrkov, 1986](#); see also [Alexandrov et al., 2017, 2018](#)). Within this framework, learning is creating a new function – that of achievement of a result through realization of the system – a new element of individual experience, whereas the behavior is subserved by realization of multiple systems formed at different stages of learning and development. The specialization of neurons, manifested in activation upon every instance of certain behavioral act, is what allows to reveal the elements of individual experience, analyze relations between these elements ([Shvyrkov, 1990](#)), describe the structure of individual experience that constitutes the subjective division of the world ([Alexandrov, 2008](#)). Since the behavior of every organism is aimed at its own results, this approach is universally suitable for humans and other animals.

A standard experimental setup in our single-neuron activity studies, aimed at description of structure of individual experience and principles of its formation, includes a square chamber with two feeders in adjacent corners and two pedals opposite to the feeders, where pressing of a pedal leads to receiving a portion of food in the feeder on the same side of the chamber (see [Sozinov et al., 2021](#) for more details). A cycle of movements from pedal pressing to food uptake and back is divided into several behavioral acts on the basis of the stages of learning that preceded the final definitive behavior. When one pedal is effective, the other is always off, and the “effective side” of the chamber is changed every 7-15 effective cycles. Therefore, the final behavior of animals is switching the symmetric sides of the chamber signaled by absence of food after pressing and delivery of food on the now effective side. A specialized neuron is the one that has activation in every instance of a certain act (or acts). The cells that do not fit the specialization criteria are called unidentified (see also [Alexandrov et al., 2018](#)).

One of the key principles formulated and verified within the systems–evolutionary approach is that formation of new systems does not rewrite or delete previously formed ones ([Alexandrov et al., 2018](#); [Gorkin et al., 2018](#); [Shvyrkov, 1990](#); [Svarnik et al., 2020](#)) – the new experience is added to, or “overlaid” on them. This is in correspondence with multiple evidence that the specializations of neurons are long-lasting, and apparently irreversible ([Clopath et al., 2017](#); [Gorkin and Shevchenko, 1991](#); [McMahon et al., 2014](#); [Thompson and Best, 1990](#)). Therefore, of principal importance for the structure of individual experience is the history of learning, i.e. the timing and order of acquisition of behavioral acts. Consequently, the key point of neuronal activity analysis is the comparison of samples of neurons (their specializations, firing indices etc.) with respect to the history of learning, given that these samples were recorded during final behavior that was similar for the groups of animals.

Comparison of subsets of posterior cingulate cortex neurons specialized in relation to a system of the same behavioral act between groups of animals that acquired these behavioral acts in different order has shown that the relations between elements of individual experience portray the structure of the task and the order of learning ([Gorkin and Shevchenko, 1996](#); [Kuzina and Aleksandrov, 2020](#)). Therefore, the structure of individual experience (in other terms, the way interactions with the environment are categorized, differentiated, or represented by the individual) is affected by the history of learning (see also

[Alexandrov et al., 2018](#)).

In a different study ([Sozinov et al., 2008](#)) the animals consecutively acquired two alternative ways to get food – ring pulling and pedal pressing. One group acquired the pedal-pressing task less than 3 hours after ring-pulling had been acquired on the same side of the chamber. These animals alternated these two forms of appetitive behavior on the same side for three more days before training on the other side in the same order. This schedule resembles massed and mixed learning (e.g., [Rohrer and Taylor, 2007](#)). The other group performed the ring-pulling for three days after its acquisition, acquired ring pulling on the other side of the chamber, and only then received the pedal-pressing task. This schedule resembles blocked and spaced learning ([Rohrer and Taylor, 2007](#)). Again, the final definitive behavior of animals from different groups were outwardly indistinguishable.

The relative number of specialized neurons was similar in the two groups. However, we then calculated the numbers of specialized cells similarly involved in both ways of behavior (specialized in relation to the same acts of the ring-pulling and pedal-pressing behavior, for example, approaching the ring and approaching the pedal on the same side of the chamber) and the numbers of the neurons that “differentiated” the rings and the pedals (involved in either ring-pulling, or pedal-pressing). The latter number was significantly smaller in the first group than in the second, implying that the two ways of behavior were represented more “independently” in animals of the first group (see also [Kazymaev et al., 2012](#)).

Finally, using the single-unit activity recording in rabbits’ anterior and posterior areas of cingulate cortex during alternation of operant appetitive behavior on the two sides of the chamber, we have shown that the dynamics of neuronal activity after switching differs with respect to the degree of the neuron’s involvement in task execution ([Sozinov et al., 2021](#)). The spike frequency of specialized anterior cingulate cortex cells increased after switching in their specific acts. Meanwhile, the frequency in other acts and in unidentified cells decreased after switching. No significant changes have been revealed in the posterior cingulate cortex neurons, although there were considerable changes similar to the previous results from our lab ([Alexandrov et al., 1999](#)). These results show that the specialized neurons (although their activations occur in every instance of a behavioral act) increase their degree of involvement after switching, thus reorganizing the subserving of task performance (by selection of neurons, see [Johnston et al., 2007](#); [Sozinov et al., 2021](#)). This underscores the importance of further demonstrations of neuronal activity changes induced by switching during learning the tasks.

To summarize this section, we propose the following conclusions:

1. The specialization of neurons reveals subjectively similar and divergent interactions with the environment and affords comparison of samples of neurons with respect to the history of learning;
2. Switching the tasks during learning impacts the structure of individual experience that underlies task performance;
3. Switching the tasks acquired earlier might also change the relations between their underlying systemic structures.

These considerations point to the importance of the view on task switching as a stage of learning. In a similar way as the neuronal activity in anterior cingulate areas is related to performing the tasks ([Johnston et al., 2007](#); [Sozinov et al., 2021](#); [Weible et al., 2009](#)), switch-related activity (e.g., [Ma et al., 2019](#)) is task-related: performance of switching is also a task, and its solution is associated with the deployment of learning. In the terms of the task space (see [Hirsch et al., 2018](#); [Weible et al., 2009](#)), this would imply that switching is not only a dynamic function within the space of alternated tasks that can be used as ready-made blocks. Switching is also one of the tasks that has to be learned. It changes the structure of individual experience and can therefore be a powerful tool in solving applied problems.

Task switching is construction of individual experience

According to the theoretical view explicated above, we consider switching as a misleading metaphor, likening the processes that underlie task switching to operation of electric circuits, and potentially implying that the switched circuits and the switch itself are separate details that do not change during switching. Not only our approach, but also both the conditioned reflex (e.g., [Timofeeva et al., 1997](#)) and cognitive (e.g., [Rubinstein et al., 2001](#)) frameworks reveal that formation of task switching is a hetero-geneous process that shares the properties of any other learning.

Cognitive approach presumes that task switching is subserved at multiple levels (associative and cognitive – [Chiu and Egner, 2017](#); emotional and cognitive – [Vermeulen et al., 2019](#)), including higher level representation of task pairs in dual tasks ([Hirsch et al., 2018](#)). In the latter study the switch cost has

been shown for switching between pairs of tasks with the corresponding signals presented with different “stimulus onset asynchrony” (see [Hirsch et al., 2018](#) for more details). In other words, besides describing alternation of two tasks by means of top-down control processes, this approach also describes a global goal, making of one task – that of switching (e.g., [Koch et al., 2018](#)). This displays the formation of task switching as emergence of a new representation, or a new long-term memory unit. In our view, this line on the theoretical picture of task switching designates wide perspective.

According to the definition that we elaborate, learning is formation of a new element of individual experience and corresponding reorganization (reconsolidation) of earlier formed elements that contribute to the new behavior ([Alexandrov et al., 2001](#)). Task switching seems to manifest features of both processes. Near transfer of switching and absence of far transfer shown in students ([Zhao et al., 2020](#); see also [Jones and Moss, 2019](#)) illustrates that the processes that underlie switching include formation of a memory unit or, in our terms, a unit of individual experience. A more heterogeneous results on training and transfer of “cognitive flexibility” in adolescence ([Buttelmann and Karbach, 2017](#)) also reveal the importance of analyzing the history of experience formation, since individual units of experience grow into multilevel organization of task switching phenomena (see previous paragraph and [Shvyrkov, 1990](#)).

The seminal work by [Wylie and Allport \(2000\)](#) has shown that the interference effect taken as a measure of task-set reconfiguration is spread far beyond a single switch trial, and that modification of memory occurs on every trial. Gradual decrease of switching costs during extensive practice ([Strobach et al., 2012](#); [Zhao et al., 2020](#)) and the dependence of switch costs on task similarity ([Arrington et al., 2003](#)) also show that switching leads to reorganization or individual experience.

The view of task switching as a result of executive control processes over associative mechanisms implies that learning to switch between tasks, manifested in reduction of costs as a result of practice, is based on “cognitive plasticity”, i.e. connecting the task performance mechanisms to a higher-level “computational power” (e.g., [Mercado, 2008](#)). The latter is assumed to be provided by the activity in prefrontal and cingulate cortices ([Bryden et al., 2019](#); [Kuwabara et al., 2014](#); [Ma et al., 2019](#); [Zhang and Williams, 2015](#)). However, no brain area (or several areas) seems to show activity related to task switching per se without relevance to the task ([Calcott and Berkman, 2015](#); [Dreher et al., 2002](#); but see [De Baene et al., 2015](#)). Meanwhile, aspects of functioning ascribed to anterior cingulate cortex, i.e. recent ([Gabriel, 1993](#)) and remote ([Frankland et al., 2004](#); [Weible, 2013](#)) memory (see also [Tonegawa et al., 2018](#)), task switching and dual task performance ([Dreher and Grafman, 2003](#)), novelty ([Barcelo et al., 2006](#)), conflict or error detection (see [Bryden et al., 2019](#); [Hyman et al., 2017](#)) and other dynamic aspects of behavior, share the same feature – a necessity of memory reorganization. This highlights the importance of learning process in manifestation of the so-called cognitive functioning.

The view of task switching as a result of learning that includes reorganization of individual experience leads to a set of research perspectives. First, if task switching is provided by formation of a new memory, it would be of theoretical importance to study whether it undergoes consolidation, incubation, reconsolidation, and/or any other process inherent to memories (e.g., [Dudai et al., 2015](#)) analogous to studies of extinction as a new memory (see [Davis et al., 2017](#)).

Second, if task switching leads to changes of prior experience akin to memory reconsolidation, switching can inspire applied studies in education and therapy. We elaborate the former perspective in a separate section, whereas the parallels for the latter can be found in a review by [Drexler and Wolf \(2018\)](#).

Third, a much nearer consequence that can be inferred from the previous section is that the indices of switching depend on history of learning the alternated tasks. This prediction is discussed in the following section.

In brief, this section envelops that:

1. If learning to switch between tasks is formation of a new memory unit, then it not only leads to reorganization of memory, but also may be accompanied by consolidation and reconsolidation phenomena;
2. The view of task switching as a result of learning leads to research perspectives discussed in the following sections.

Task switching and the history of learning

The explanation of task switching by inhibition and inertia is mainly targeted via analysis of switch costs and manipulation of task complexity. For example, univalent and bivalent tasks are employed to reveal the effects of previous and current task on switch costs ([Lien et al., 2006](#); [Wylie and Allport, 2000](#)). Variation of complexity also allows for assessment of age differences (see [Wasylyshyn et al., 2011](#)) and switch cost asymmetry ([Yeung and Monsell, 2003](#)). Besides complexity, the switch costs have also been

shown to be affected by the amount of practice (Strobach et al., 2012) and age (Wasylyshyn et al., 2011).

Our theoretical considerations on the history of learning and results of single neuron activity recordings introduced above allow to propose that the schedule of learning may also affect task switching. Functions develop as achievement of adaptive results (Anokhin, 1974). What is called “cognitive functions”, in our view, are also not static abilities or types of computation, but characteristics of the structure of individual experience formed as a result of learning (see also Alexandrov and Sams, 2005). Therefore, the formation of task switching, like any learning, is accompanied by reorganization of individual experience derived from the demands of the task (Alexandrov et al., 2018), i.e. forming a structure that unites elements of previous experience into one behavior.

Since the neurons specialized in relation to systems of new behavioral acts change their activity after task switching (Sozinov et al., 2021), and the set of these neurons differs with respect to learning protocol (Sozinov et al., 2008), it is possible that the measures of switching are affected by the history of learning. In accordance with this proposition, switching depends on task familiarity (e.g., Yeung and Monsell, 2003) and differs individually (e.g., Umemoto and Holroyd, 2016). The cross-language activation assessed via using cross-language homographs was shown to be sensitive to language experience (the first or the second language; Gullifer and Titone, 2019).

The rate of switching is associated with the order of tasks during learning. In our studies of neuronal activity after switching, the duration of transition of animals to the first-acquired side of the chamber was lower than to the second (Sozinov et al., 2021). This difference was significant during the first week of practice and disappeared afterwards. When the duration of transition was compared between the protocols of learning to acquire food with ring pulling and pedal pressing (Sozinov et al., 2008), switching to the first task appeared to be the longest after mixed (and massed) learning in comparison to the blocked learning and transitions to all other tasks.

Overall, this section illustrates that the indices of switching are affected by the learning history, which is in correspondence to the view of switching as reorganization of prior experience.

Task switching and applied research in education

One of the tools of education that involves the aspect of switching is arrangement of materials during teaching and practice. The massed/spaced (or distributed) and blocked/mixed schedules differ with respect to subsequent test performance, but there is no universal rule of efficacy (see Rohrer and Taylor, 2007; Son and Simon, 2012). The brain activity is known to be influenced by the teaching method, even when the behavioral measures do not reveal any effect (Brault Foisy et al., 2020). As we elaborate in the previous section, switching between the tasks is also part of the learning history. In the already mentioned articles by Gorkin and Shevchenko (1996) and by Sozinov et al. (2021) the order of acquired behavioral acts differed with respect to switching (changing the effective sides of the chamber) during learning, and all samples of neurons consisted of different sets of specializations. If the task switching shapes the structure of individual experience, it can serve not only an obstacle, but also as an instrument of educational practice.

According to our results on neuronal specializations described above (Sozinov et al., 2008), switching the tasks during learning was accompanied by greater divergence between them. One of the possible ways in which task switching may help learning is the contrast between alternated tasks that satisfies necessity of variation (Marton, 2006). Therefore, switching might be beneficial in learning to differentiate. This means that even in the absence of obvious differences of performance measures, the history of learning influences the structure of individual experience. Therefore, it potentially influences interference and/or transfer of the acquired knowledge during further learning. In this respect, the effect of switching is important issue for further research in neuroscience and applied studies in education.

An important attribute of modern communication is multitasking, which involves (Koch et al., 2018) or consists in (Hassed, 2016) task switching and inevitably infiltrates education (Srna, Schrift and Zauberman, 2018). The main predictor of success in multitasking is individual characteristics of working memory, not the age of participants or the amount of practice – members of the “digital generation” equally reduce their speed and accuracy when they have to use additional communication tools or digital technologies as the older participants (Carrier et al., 2015; Dindar and Akbulut, 2016). Also multitasking does not reveal an unambiguous effect on learning: it can decrease, increase, or have no effect on retention and topic interest (Carrier et al., 2015; Dindar and Akbulut, 2016). Our comparison of academic performance and switch costs between groups of schoolchildren who acquired two concepts with or without switching showed remote benefit of learning with switching accompanied by greater cognitive

effort (to be published after complete data analysis). Therefore, of importance is the “management” of multitasking that would increase the effectiveness of learning using segmentation of individual learning episodes, grouping of tasks by importance, and other tools of reorganization of experience (Stavtseva, 2014), and would possibly mediate the developing creative abilities (see Markina and Vladimirov, 2019; Zdanevych et al., 2020).

In this section we proposed the theoretical bases for and examples of using task switching in educational practice. If switching between tasks leads to changes in the structure of experience, switching itself can be a tool that allows for segmentation or integration of corresponding memories. Further research in neuroscience and education is needed to make use of this potential resource. If task switching restructured the links within acquired knowledge in a controllable way, the use of switching in education and therapy would be worth the cognitive effort.

Conclusions

The analysis of neuronal specializations in relation to systems of newly learned behavioral acts reveals subjective division (or “categories”) of an organism-environment interaction. Subjects that performed similar over-learned behavior had specialization patterns that differed in accordance with their preceding learning protocols. The differentiation between the tasks on the neuronal level is greater in the group of animals that acquired both tasks in a quick succession (i.e. had interleaved, or massed, learning with risk of interference) compared to the group that acquired two versions of each task with extended practice (i.e. had spaced learning with greater transfer effect). These results and the behavioral indices of task performance show that the structure of experience derived from the history of learning may be stable and keeps influencing the performance after overlearning.

The activity of neurons in anterior and posterior cingulate cortex that changes in connection to task switching is the task-specific firing of the specialized cells. In other words, switching is substantially subserved by neurons involved in task execution. Correspondingly, we show that the behavioral indices of task switching are linked to the history of learning and explain it by irreversible specialization of neurons that largely subserve the switch.

These conclusions can be further developed in studies of brain activity dynamics, but we also consider them to serve a strong basis for applied research in educational settings. Since task switching is an important index of cognitive abilities and an inevitable necessity in social communication, it is of interest to compare task switching between declarative tasks in schoolchildren with different learning conditions (e.g., motivation, learning protocol etc.) to see if task switching can be used as a tool for assessing and changing of the acquired knowledge structure.

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Conflict of interests

The authors declare no conflict of interest.

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