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Impact of digital educational environment on the emotional intelligence of future primary school teachers: a comparative research

Вплив цифрового освітнього середовища на емоційний інтелект майбутніх вчителів початкової школи: порівняльне дослідження

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Abstract

The aim is comparison parameters and substantiation of the formedness of emotional intelligence of future teachers trained under conditions of a digital educational environment and under conditions of a usual educational format. The development of emotional intelligence and the formation of emotional-intellectual culture make the core of future teachers' language behavior. Statistically significant differences of the respondents trained under conditions of a digital educational environment (Group 1) and those trained under conditions of a usual educational format (Group 2)

Анотація

Метою є порівняння параметрів і обґрунтування сформованості емоційного інтелекту майбутніх вчителів підготовлених в умовах цифрового освітнього середовища та в умовах звичайного формату роботи. Розвиток емоційного інтелекту, сформованість емоційно-інтелектуальної культури складають стрижень мовної поведінки майбутнього вчителя. З'ясовано статистично достовірні відмінності респондентів підготовлених в умовах цифрового освітнього середовища (Group 1) і підготовлених в умовах звичайного формату (Group 2) за параметром "розуміння

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were found by the parameter "an individual's understanding others' emotions". The direct involvement of future teachers in the professional process activates positive changes in the formation of emotional intelligence, promotes initial adaptation and professionalization in the workplace. It was noted that a solid theoretical basis of respondents is important for the formation of emotional intelligence. The established scientific facts were recommended for implementation in organization of educational process of future teachers.

Keywords: educational process, distance education format, mixed education format, digital educational technologies, professional training for teachers, university, innovatics.

особистістю емоцій інших". Безпосередня включеність майбутніх вчителів у виробничий процес активізує позитивні зміни у формуванні емоційного інтелекту, сприяє первинній адаптації і професіоналізації на робочих місцях. Зазначено, що для формування емоційного інтелекту має важливе значення міцна теоретична база респондентів. Рекомендовано з'ясовані наукові факти впровадити у організацію освітнього процесу майбутніх вчителів.

Ключові слова: освітній процес, дистанційна форма навчання, змішана форма навчання, цифрові освітні технології, професійна підготовка вчителів, університет, інноватика.

Introduction

Education is a major facilitator of achieving goals of sustainable development, determined by the United Nations Organization (UNO). Therefore, education should solve a number of global problems of humanity, such as the fight against poverty, maintenance of health and well-being, reduction in inequality, implementation of innovations, etc (Buerkle et al., 2023). Continuous transformational changes, occurring in our society, have affected all areas of human life (Arbeláez-Campillo et al., 2020). Over the past decade, training for future professionals has undergone considerable content innovations and changes. The outlined changes have also impacted a socionomic area on the whole and training for teachers, in particular. Conditions of a digital educational environment require organizers and consumers of educational services to have a sufficient level of the development of media-literacy, competences in using information-communicative and digital technologies in an educational environment, knowledge of digital education, information security and cybersecurity.

Hypothesis. Parameters of emotional intelligence under conditions of a digital educational environment and under conditions of a usual educational format will have statistically significant differences; correlations of emotional intelligence with the directions of educational-professional activity – theoretical, practical and innovative – will have a different structure of significant correlations.

The aim. To empirically study, compare and substantiate the formedness of emotional intelligence of future teachers trained under conditions of a digital educational environment and under conditions of a usual educational format.

Literature Review

Emotional intelligence in the space "teacher – student": the current realities and challenges. It was substantiated that an educational environment should comply with the requirements for safe conditions and consider, if necessary, the specificity of inclusive education (Popovych et al, 2021b). A variety of educational platforms, applications for distance communication and learning, and the development of artificial intelligence technologies have entered the space "teacher – student" and even taken a number of assessment, signal, control, reproduction and accounting functions. It is not correct to state that artificial intelligence has become a full-fledged subject of organization of educational process, but, at least, it performs its important functions. L. Mialkovska et al. (2023) think that artificial intelligence technologies have dramatically changed content and operational components of students' communication. All these innovations are very important for social development. At the same time, an important question arises: "Is training for future primary school teachers losing in the formation of the key competences realized under conditions of a digital educational environment?" One of such key competences is emotional intelligence. The Concept of a New Ukrainian School considers emotional intelligence to be a key competence which is crucial for the formation and development of an individual (Bibik, 2017). The researcher thinks that the formedness of a teacher's emotional-intellectual culture is an indispensable part of a

pedagogue's language behavior. Such a combination finds its reflection in their individual style of activity and is oriented towards activation of learners' cognitive activity (Bibik, 2017).

The role of emotional intelligence in the formation of the key competences of future teachers. The author of fundamental studies about emotional intelligence Daniel Goleman (1995) noted that emotional skills are the basis of emotional intelligence. The scientist considered emotional skills to be, on the one hand, awareness and identification of emotions and, on the other hand, focused attention on regulation and management of emotions. Since emotional skills can be oriented towards one's own and others' emotions, emotional intelligence combines self-realization, awareness of social interactions, self-management and management of relations (Goleman, 1995). The empirical research on a correlation between emotional intelligence and adaptation found that a number of psychological content parameters of emotional intelligence positively correlates with future professionals' adaptation to a professional environment (Halian et al., 2020). In her method for studying emotional intelligence, the researcher V. Zarytska (2019) empirically established and substantiated the following structure of the investigated phenomenon: an individual's understanding their own emotions; self-control and self-regulation of emotions; an individual's understanding others' emotions; ability to use emotions in activity and communication. Examining competences which a future teacher should have, a number of researchers (Aldrup et al., 2023; Halian, 2019; Pavlyk & Radzimovska, 2023; Yaremchuk, 2022) highlight the ability to build partnership with all participants of educational process, emotional balance, empathy and, at the same time, stress-resistance, tolerance of uncertainty and sociability. Such a list of professional qualities also includes sufficiently developed emotional intelligence. Tolerance of uncertainty is a key characteristic affecting permanence of professional development of future teachers (Budnyk et al., 2022). Tolerance in interpersonal relationships as an important component of the formation of emotional culture of future teachers is emphasized by O. Tsiuniak (2023). The researcher underscores that a teacher's psycho-emotional state affects efficiency of organization of learning in a digital educational environment. A teacher demonstrates their emotional culture in interpersonal relationships, in a language etiquette and communicative competences. It is important that a teacher can demonstrate their support for students, first of all, through their emotional resistance and calmness, which are the indicators of high emotional culture and emotional intelligence (Tsiuniak, 2021). We can generalize that emotional culture and emotional intelligence are interrelated and complement each other. Emotional culture is a basic component, while emotional intelligence is a component having a high operational capacity in professional or everyday activities. Besides, D. Goleman (1995) also associated emotional culture with emotional intelligence. In a number of studies on dominant mental states (Chen et al., 2012; Porras Carmona et al., 2020; Wang et al., 2022), an emotional component has statistically significant correlations with dependent variables in educational-professional activity. Studying psycho-linguistic mechanisms of regulation of educational activity, O. Chebykin (2023) revealed the essence and substantiated the interaction of thinking-speaking acts and motivational-emotional manifestations. The author operationalized the role of an emotional component in educational activity of students. The empirical studies finding significant parameters of an emotional component in such opposite characteristics as assertiveness and self-esteem, optimism evoke scientific interest (Gavín-Chocano et al., 2024). Attention is paid to a temporal component of training for future professionals. It concerns not only the forward-looking nature of training for professionals and their gaining general and special competences, but also an anticipatory ability of students in their future profession (Galanakis et al., 2021; Halian et al., 2021). The research on operationalization of temporality of future professionals in dimensions of psychological well-being demonstrated a key role of positive relationships and psycho-emotional climate (Semenov et al., 2021). It was proved that social support and adequate working loads contribute to teachers' psychological well-being (Carranza Esteban et al., 2023). It was found that social expectations of participants of interaction as a prognostic component of activity are dispositional readiness for constructive interaction which is also maintained by well-developed emotional intelligence (Popovych et al., 2021a; 2021b; 2022).

We can generalize that retrospective analysis adds topicality to the research on the scientific problem of emotional intelligence which develops under conditions of a digital educational environment in the subjects of this process.

Summarizing the problem of emotional intelligence in training future primary school teachers, we should not that this research lies in the plane of the formation of emotional-intellectual culture of teachers. The analyzed studies do not provide exhaustive information about the unambiguous impact of a digital educational environment. The study reveals the aspects of emotional intelligence in the space "teacher – student", and analyzes the present realities and challenges. The role of emotional intelligence in the formation of the key competences of future teachers is clarified. The outlined articulation of the researched problems makes it necessary to establish statistically significant measurements and differences in training future teachers in digital and traditional environments.

Methods

Organization of research. The empirical research was carried of the academic year 2023–2024. The respondents were informed in advance about confidentiality of the research, its purpose and procedure. Everyone who participated in the research did it voluntarily and gave sincere responses on their own initiative. The Ethical Committees of universities-organizers approved the research and gave the researchers the data on the respondents' academic performance. Theoretical analysis, empirical data processing, comparison and establishment of significant correlations and differences and design were organized in January, 2024.

Research Limitation. A low probability of organizing an ideal experiment in which the respondents of the investigated groups will be fully isolated from a side effect of the factors is a key limitation of our research. The advantage of the research was the fact that Group 1, consisting of the future teachers, trained under conditions of a digital educational environment, really took university courses only in a distance educational format and used the means of a digital educational environment. We found it complicated to organize the sample of Group 2 consisting of the respondents trained under conditions of a usual educational format, since they could also use educational platforms for informal/formal education or their self-development, and it was very difficult to keep track of it. Therefore, our research can reasonably be regarded as a study with characteristics of a quasi-experiment, i. e. a researcher cannot always control a dependent variable, accepting an insignificant impact of additional factors. The retrospective analysis showed that the problem of emotional intelligence is not new, however, similar empirical studies or research with elements of comparison have not been found. Similar empirical studies would allow confirming or disproving the established scientific facts.

Participants. Students seeking a degree in the field of primary education were selected randomly. They comprised the research sample. The sample appropriately reflected the population. For meeting the requirements of accuracy of the experiment, the sample of the experiment involved the postgraduates seeking a Master's degree in the field of study 013 "Primary education". Group 1 involved a Master's degree seekers – future teachers trained under conditions of a digital educational environment of Kherson State University (relocated in Ivano-Frankivsk, Ukraine); Group 2 involved a Master's degree seekers – future teachers trained under conditions of a usual educational format from Ivan Franko National University of Lviv (Lviv, Ukraine) and Lesya Ukrainka Volyn National University (Lutsk, Ukraine). The age of the research participants ranged from 22 to 29 years (M=24.34; SD=±3.01; Me=24.50; Mo=22.00). Group 1 numbered n=35; 35.00% and Group 2 – n=65; 65.00%. Distribution of the research participants by gender was as follows: females (n=94; 94.00%) and males (n=6; 6.00%).

Procedures and instruments. The basic psycho-diagnostic instrument was the method for determining the level of development of emotional intelligence of the personality (DEIP) (Zarytska, 2019). The method contains seventy-six statements and a four-point Stapel scale with the distribution of points from four to one, where 4 – almost always; 3 – often; 2 – sometimes; 1 – never. Four basic scales and one integral scale were used. The basic scales: an individual's understanding their own emotions (IUOE); self-control and self-regulation of emotions (SSE); an individual's understanding other people's emotions (IUOPE); ability to use emotions (AUE). The integral scale is a general level of emotional intelligence (GLEI). The internal consistency of Cronbach's alpha by the method equaled .723, that is considered to be a satisfactory level for empirical studies. The questionnaire "Professional readiness of students for innovative activity" (PRSIA) (Tsiuniak, 2021) allowed establishing an innovative component of academic performance. Since the method has two dimensions – a quantitative coefficient and a qualitative coefficient, the integrated coefficient of innovatics (ICI) was

used. The integrated coefficient of innovatics is a combination of points obtained for the respondents' answers to the test questions and data of content-analysis. Combination of quantitative and qualitative dimensions ensured collection of reliable data on the formedness of an innovative component of academic performance of future teachers. The internal consistency of Cronbach's alpha was registered at the level .814, that corresponds to a medium level. The parameters of efficiency of theoretical and practical components comprised the results of academic performance, namely, the grade point average of theory (GPAth) and the grade point average of practice (GPAp) found by European Credit Transfer and Accumulation System (ECTS).

Statistical analysis. The initial processing of the empirical data was carried out by MS "Excel". The computer program SPSS Statistics version 19.0.1 was used to find descriptive frequency characteristics, significant correlations and statistically significant differences. The figure was drawn using the graphical editor MS "Word". Spearman's correlation coefficient (r_s), the Mann-Whitney's coefficient (U) and Student's coefficient (t) ensured statistical significance of the measurements. The levels of statistical significance $p \leq .050$ and $p \leq .010$ were used for substantiating the research findings. They comprised provability of the empirical regularities.

Results

To meet the requirements of replication of empirical research, we presented the collected data as descriptive frequency characteristics. Given the strategy of summative research with elements of comparison, we selected three key dimensions: the median (*Me*); the mean (*M*) and the mean squared deviation (*SD*). Characteristics were identified by each investigated group. Comparison was performed by the median, using the Mann-Whitney U-test. All the parameters obtained by the methods "DEIP" (Zarytska, 2019) and "PRSIA" (Tsiuniak, 2021), and also the grade point average of academic performance by theoretical and practical components were used for comparison. Tabl. 1 gives comparison of the investigated parameters.

Table 1.
Comparison of the investigated parameters by the Mann-Whitney U-test (n = 100)

Group	Descriptive characteristic	Parameters							
		IUOE	SSE	IUOPE	AUE	GLEI	ICI	GPAth	GPAp
Group 1 (n=35)	M	46.12	42.08	43.03	39.81	189.55	.64	74.35	70.12
	SD	±9.87	±7.45	±8.13	±6.97	±30.82	±.19	±13.12	±11.92
	Me	46.00	42.00	43.00	40.00	190.00	.63	74.50	71.00
Group 2 (n=65)	M	51.46	44.34	49.37	42.14	201.98	.61	78.12	76.88
	SD	±10.24	±7.89	±10.24	±7.69	±35.51	±.18	±14.02	±14.31
	Me	51.50	44.50	49.50	42.00	202.00	.61	78.00	77.50
Mann-Whitney (U)	U	704.00	768.00	**318.00**	845.00	731.00	623.50	698.00	623.00
	p	.192	.312	.004	.621	.198	.068	.123	.067

Source: Own research.
Note: Group 1 – the sample of future teachers trained under conditions of a digital educational environment; Group 2 – the sample of future trained under conditions of a usual educational format; M – the mean; SD – the mean squared deviation; Me – the mediana; U – the value of the Mann-Whitney U-test; p – the level of significance; IUOE – an individual's understanding their own emotions; SSE – self-control and self-regulation of emotions; IUOPE – an individual's understanding others people's emotions; AUE – ability to use emotions; GLEI – a general level of emotional intelligence; ICI – integral coefficient of innovatics; GPAth – the grade point average of academic performance in theory; GPAp – the grade point average of academic performance in practice.

Training for future teachers under conditions of a digital educational environment (Group 1) is not inferior to Group 2 by a considerable number of the investigated parameters. The only statistically significant difference was registered in the parameter "an individual's understanding others people's emotions" (U=318.00; p=.004). There were increasing and decreasing tendencies by the rest of the parameters. An increasing tendency in Group 1 was found in ICI (U=623.50; p=.068), the rest of the parameters have an increasing tendency in Group 2.

According to the research plan, we established correlations between the parameters of academic performance and emotional intelligence by

Spearman's coefficient (r_s). Since the sample had uneven distribution, Spearman's correlation coefficient (r_s) was used. Tabl. 2 gives a correlation matrix of the sample (n = 100).

Table 2.
Correlation matrix of the sample (n = 100)

Parameters of academic performance	Spearman's coefficient	Parameters				
		IUOE	SSE	IUOPE	AUE	GLEI
ICI	r_s	.069	.081	-.035	.086	*.093**
	p	.262	.067	.696	.056	.042
GPAth	r_s	*.089**	.032	.079	-.034	.085
	p	.046	.655	.073	.697	.057
GPAp	r_s	*.093**	*.129**	*.089**	**.156****	**.165****
	p	.042	.036	.046	.007	.006

Source: Own research.
Note: ICI – integral coefficient of innovatics; GPAth – the grade point average of theory; GPAp – the grade point average of practice; r_s – Spearman's correlation coefficient; p – nominal value; IUOE – an individual's understanding their own emotions; SSE – self-control and self-regulation of emotions; IUOPE – an individual's understanding others people's emotions; AUE – ability to use emotions; GLEI – general level of emotional intelligence; * – p≤.050 (given in *italics*); ** – p≤.010 (given in **bold**).

The correlation pleiad complements the correlation matrix. The correlation pleiad allowed visualizing the correlation regularities. Fig. 1 depicts the correlation pleiad of the parameters of academic performance and emotional intelligence.

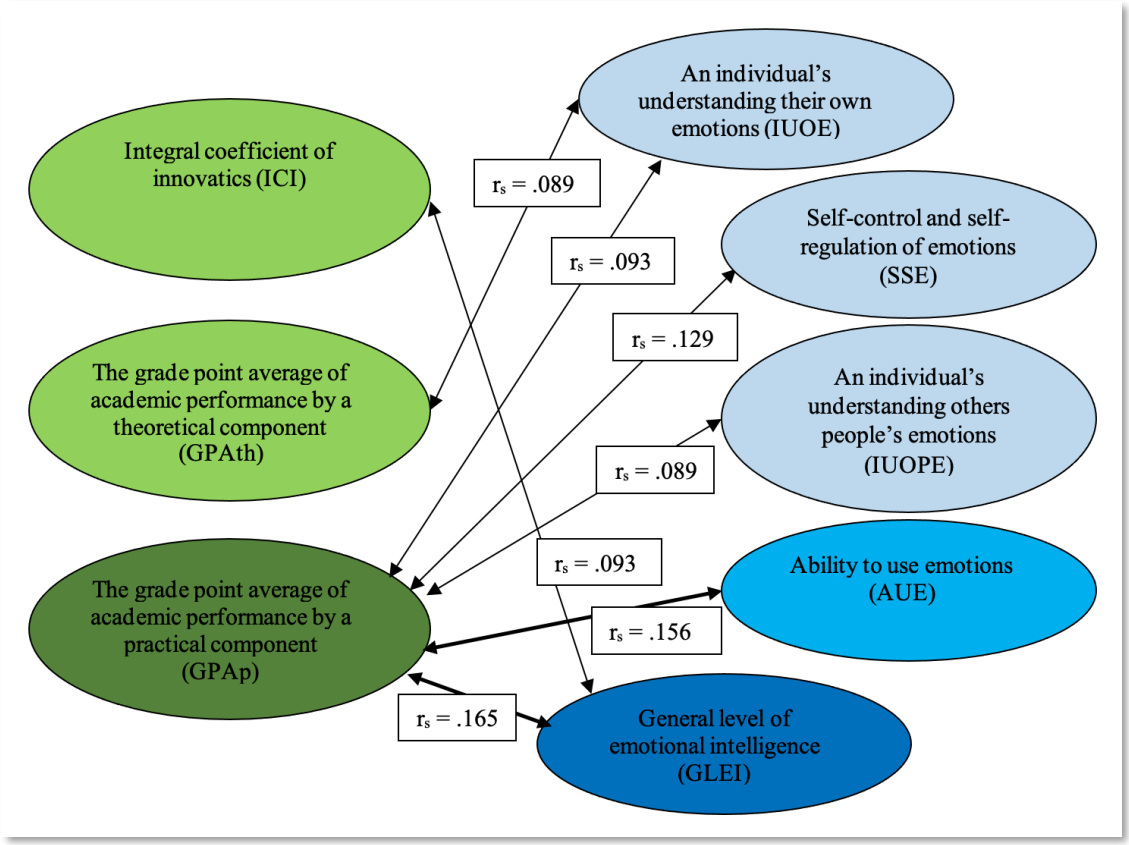

Figure 1. Correlation pleiad of the parameters of academic performance and emotional intelligence (n = 100)
Source: Own research.
Note: ——— positive correlations with p≤.050; ——— positive correlations with p≤.010.

We established seven statistically significant correlations of the parameters of academic performance and emotional intelligence. The grade point average of academic performance in practice (GPAp) has statistically significant correlations with all the parameters of emotional intelligence that is considered to be a partly unexpected result. There was one significant correlation in ICI and GPAth. We established the strongest correlation of GPAp with a general level of emotional intelligence (r_s = .165; p = .006) and ability to use emotions in communication and activity (r_s = .156; p = .007). In the research there were no negative statistically significant correlations. We emphasize that the grade point average of practice (GPAp) is the most important dimension of academic performance in the context of the formation of emotional intelligence. The significant correlation with AUE (r_s = .156; p = .007) also testifies to it.

According to the plan of the empirical research, comparison of the investigated groups by low and high parameters of academic performance was performed. As a result, we found statistically significant differences in Groups A and B (low and high levels of ICI), in Groups C and D (low and high levels of GPAth) and in Groups E and F (low and high levels of GPAp). All the investigated groups were distributed by the median (Me). Tabl. 3 gives the results of comparison of the investigated parameters in Groups A (n = 32; 32.00%) and B (n = 68; 69.00%) by the Mann-Whitney U-test.

Table 3.
Comparison of the investigated parameters in Groups A and B distributed by ICI

Mann-Whitney (U)	Parameters				
	IUOE	**SSE**	**IUOPE**	**AUE**	**GLEI**
U	577.50	*429.00*	639.00	*477.00*	**403.00**
p	.112	.013	.365	.029	.009

Source: Own research.
Note: U – the Mann-Whitney test; p – the level of significance; IUOE – an individual's understanding their own emotions; SSE – self-control and self-regulation of emotions; IUOPE – an individual's understanding other people's emotions; AUE – ability to use emotions; GLEI – a general level of emotional intelligence; * – the level of significance p≤.050 (given in *italics*); ** – the level of significance p≤.010 (given in **bold**).

It was found that the group with a high level (Group B) of the integral coefficient of innovatics (ICI) has an advantage over Group A by SSE (U = 429.00; p = .013), AUE (U = 477.00; p = .029), GLEI (U = 403.00; p = .009). Group A does not have an advantage by any of the parameters.

Tabl. 4 gives the results of comparison of the investigated parameters in Groups C (n = 41; 41.00%) and D (n = 59; 59.00%) by the Mann-Whitney U-test.

Table 4.
Comparison of the investigated parameters in Groups C and D distributed by GPAth

Mann-Whitney (U)	Parameters				
	IUOE	**SSE**	**IUOPE**	**AUE**	**GLEI**
U	*417.00*	587.00	*431.50*	511.50	**392.00**
p	.011	.279	.015	.063	.008

Source: Own research.
Note: U – the Mann-Whitney test; p – the level of significance; IUOE – an individual's understanding their own emotions; SSE – self-control and self-regulation of emotions; IUOPE – an individual's understanding other people's emotions; AUE – ability to use emotions; GLEI – a general level of emotional intelligence; * – the level of significance p≤.050 (given in *italics*); ** – the level of significance p≤.010 (given in **bold**).

It was found that the group with a high level (Group D) of the grade point average of academic performance by a theoretical component (GPAth) has an advantage over Group C by IUOE (U = 417.00; p = .011), IUOPE (U = 431.50; p = .015), GLEI (U = 392.00; p=.008). Group C does not have an advantage by any of the parameters.

Tabl. 5 gives the results of comparison of the investigated parameters in Groups E (n = 29; 29.00%) and F (n = 71; 71.00%) by the Mann-Whitney U-test.

Table 5.
Results of comparison of the investigated parameters in Groups E and F distributed by GPAp

Mann-Whitney (U)	Parameters				
	IUOE	**SSE**	**IUOPE**	**AUE**	**GLEI**
U	*475.00*	**288.00**	*498.00*	**328.00**	**321.00**
p	.028	.000	.036	.000	.000

Source: Own research.
Note: U – the Mann-Whitney test; p – the level of significance; IUOE – an individual's understanding their own emotions; SSE – self-control and self-regulation of emotions; IUOPE – an individual's understanding other people's emotions; AUE – ability to use emotions; GLEI – a general level of emotional intelligence; * – the level of significance p≤.050 (given in *italics*); ** – the level of significance p≤.010 (given in **bold**).

It was found that the group with a high level (Group F) of the grade point average of academic performance by a practical component (GPAp) has an advantage over Group E by all the parameters of emotional intelligence: IUOE (U = 475.00; p = .028), SSE (U = 288.00; p = .000), IUOPE (U = 328.00; p = .000), AUE (U = 328.00; p = .000), GLEI (U = 321.00; p = .000). The highest parameters of a statistically significant advantage were registered in the parameters: SSE (U = 288.00; p = .000), AUE (U = 328.00; p = .000), GLEI (U = 321.00; p = .000) which have rather an operational direction that a formal one.

Discussions

The issue of emotional intelligence in professional development of future professionals is not new, it has been sufficiently investigated by researchers in different social areas. At the same time, there are innovative empirical studies (Chebykin, 2023; Kolly-Shamne & Tokareva, 2021), showing that a scientific community's interest in the problem of emotional intelligence has not been decreasing. Researchers consider applied empirical studies to be especially valuable, since they can contribute to solving urgent problems, and it will be possible to immediately implement their results in educational process (Jabbarov et al., 2023; Mamani-Benito et al., 2023; Popovych et al., 2022; Rojas Samanez et al., 2019). Rapid changes in society require advanced solutions with a well-developed algorithm of implementation.

Comparison of descriptive frequency characteristics of the two groups (see Tabl. 1) demonstrated a lack of significant differences by a considerable number of parameters (seven dimensions). The only statistically significant difference was registered in the parameter "an individual's understanding other people's emotions" (U=318.00; p=.004). We can explain this advantage of the respondents trained under conditions of a usual educational format by the fact that regular offline communication with lecturers, students and university administrations contributes to becoming acquainted with other people and, consequently, knowing themselves, gaining experience and understanding other people's emotions through psychological mechanisms of interiorization and exteriorization. However, we should note that there were no significant differences in the parameter "an individual's understanding their own emotions" (U = 704.00; p = .192) (see Tabl. 1). Obviously, the formedness of this parameter possesses sufficiently high assimilative capacity, in comparison with the previous one, therefore there were no significant changes. We can generalize that immediate emotional communication of future teachers affects the formation of their emotional intelligence. Since they will have to work with pupils, the formedness of emotional intelligence and a number of characteristics depending on the level of emotional intelligence will affect a qualitative component of organization of educational process. A similar study shows a correlation between an applied component and a professional identity of future professionals (Kovalchuk et al., 2022; Kuk et al., 2015; Sanabrias-Moreno et al., 2023), that does not contradict our empirical findings and explanations.

The correlation matrix (see Tabl. 2) and pleiad (see Fig. 1) added a number of significant arguments concerning regularities of a correlation between the parameters of academic performance and emotional intelligence. A dominant number of statistically significant correlation between the grade point average of academic performance by a practical component (GPAp) and the parameters of emotional intelligence makes it the most important and the most dependent variable in the formation of emotional intelligence. It is worth noting that this component was determined by the respondents' results of academic performance, professional

training and pre-graduation practice. It is obvious that immediate involvement in a future professional process activates positive changes in the formation of emotional intelligence of future teachers. We should underscore that a lack of advantage of the respondents trained under conditions of a digital educational environment considerably loses in the formedness of emotional intelligence because of deficiency of immediate emotional communication. The empirical findings obtained in other studies (Hen, & Sharabi-Nov, 2014; Molero Jurado et al., 2022) partly confirm the fact established in our research.

Comparison by all the parameters of academic performance (see Tabl. 3–5) allowed efficiently identifying statistically significant differences in the parameters of emotional intelligence. The advantage of Group F (see Tabl. 5) by all the dimensions of emotional intelligence testifies to the validity of our previous conclusions and the importance of a practical component in training for future teachers. The advantage of Group B (see Tabl. 3) based on the parameters "self-control and self-regulation of emotions", "ability to use emotions" and "a general level of emotional intelligence" shows that the operational parameters of emotional intelligence, related to self-control, self-regulation and using emotions in communication and activity, have an impact on an innovative component in professional training. We assume that this comparison also reveals a key role of a practical component, but this assumption requires confirmation. The advantage of Group D (see Tabl. 4) by the parameters "an individual' understanding their own emotions", "an individual's understanding other people's emotions" and "a general level of emotional intelligence" emphasized a key role of cognitive intentions in the formation of emotional intelligence. It testifies that it is impossible to form emotional intelligence without a solid theoretical foundation.

The aim was achieved and the hypothesis was confirmed. We found a number of significant differences, underscored the importance of a practical component in the formation of emotional intelligence, demonstrated a different structure of significant correlations of theoretical, practical and innovative components of academic performance. The obtained empirical results do not cover the entire research subject and require further steps towards operationalization and implementation in educational process. The research prospects consist in searching for methods and techniques for efficient formation of emotional intelligence of future professionals under conditions of a digital educational environment.

The given results do not exhaust the depth and complexity of the research into emotional intelligence in training future teachers. The prospects of further research will consist in creating a comprehensive training program for the development of emotional intelligence, testing and documentation of the research results.

Conclusions

The parameters of emotional intelligence of future teachers trained under conditions of a digital educational environment were studied, and comparison of dependent and independent variables was performed. We registered the only statistically significant advantage of the parameter "an individual's understanding other people's emotions" (U=318.00; p=.004) characteristic of the respondents trained under conditions of a usual educational format. Seven statistically significant correlations of the parameters of academic performance with emotional intelligence were established. A dominant advantage of the grade point average of academic performance by a practical component (GPAp) with the parameters of emotional intelligence was identified. It was substantiated that it is the most important and the most dependent parameter in the formation of the respondents' emotional intelligence. It was explained that the respondents' immediate involvement in a future professional process activates positive changes in the formation of emotional intelligence of future teachers. It was proved that a solid theoretical foundation of respondents is also very important for the formation of emotional intelligence.

The obtained empirical results possess scientific novelty, and they are recommended for implementation in educational process.

Bibliographic References

Aldrup, K., Carstensen, B., & Klusmann, U. (2023). The role of teachers' emotion regulation in teaching effectiveness: A systematic review integrating four lines of research. *Educational Psychologist, 59*(2), 89-110. https://doi.org/10.1080/00461520.2023.2282446

Arbeláez-Campillo, D., Tatsiy, V., Rojas-Bahamón, M., & Danilyan, O. (2020). Contributions of critical thinking as a form of

participation and political deliberation. *Amazonia Investiga, 9*(27), 5-12. https://doi.org/10.34069/AI/2020.27.03.1

Bibik N. M. (2017). *New Ukrainian School: A Teacher's Guide*. Kyiv: Publishing House "Pleiady" LLC. URL: https://acortar.link/QxUj6H

Budnyk, O., Rembierz, M., Arbeláez-Encarnación, T. F., Rojas-Bahamón, M. J., Arbeláez-Campillo, D. F., Chinchoy, A., & Matveieva, N. (2022). Formation of tolerance in the inclusive environment of an educational institution. *Amazonia Investiga*, *11*(56), 305-319. https://doi.org/10.34069/AI/2022.56.08.29

Buerkle, A., O'Dell, A., Matharu, H., Buerkle, L., & Ferreira, P. (2023). Recommendations to align higher education teaching with the UN sustainability goals – A scoping survey. *International Journal of Educational Research Open*, *5*, 100280. https://doi.org/10.1016/j.ijedro.2023.100280

Carranza Esteban, R. F., Mamani-Benito, O., Turpo Chaparro, J. E., Apaza Romero, A., & Castillo-Blanco, R. W. (2023). Social support at work and workload as predictors of satisfaction with life of Peruvian teachers. *South African Journal of Education, 43*(3), 1-10. https://doi.org/10.15700/saje.v43n3a2197

Chebykin, O. (2023). Psycholinguistic Mechanisms of Emotion Regulation of Educational Activity. *Insight: the psychological dimensions of society*, *10*, 117-136. https://doi.org/10.32999/2663-970X/2023-10-6

Chen, Z. C., Chen, J. F., & Chang, H. C. (2012). The relationships between physical fitness, emotional intelligence and academic achievement in a junior high school in Taiwan. *Asia Pacific Journal of Sport and Social Science*, *1*(2–3), 186-196. https://doi.org/10.1080/21640599.2012.752558

Galanakis, M., Krana, L., & Nikola, M. (2021). Emotional Intelligence in Primary School Teachers: The Effect of Gender, Age and Tenure. *Psychology*, *12*, 1781-1789. https://doi.org/10.4236/psych.2021.1211107

Gavín-Chocano, Ó., Checa Domene, L., Valdivia-Casas, M., & García-Martínez, I. (2024). The impact of self-esteem, optimism and emotional intelligence on the professional development of future primary and pre-school teachers. *Teacher Development*, 1-16. https://doi.org/10.1080/13664530.2024.2340651

Goleman, D. (1995). *Emotional intelligence.* Bantam Books, Inc. URL: https://psycnet.apa.org/record/1995-98387-000

Jabbarov, R., Mustafayev, M., Valiyeva, Y., Babayeva, T., & Abbasova, A. (2023). Study of the relationship between emotional intelligence and aggression in students. *Apuntes Universitarios*, *13*(2), 155-174. https://doi.org/10.17162/au.v13i2.1440

Halian, A., Halian, I., Burlakova, I., Shevchenko, R., Lappo, V., Zhigarenko, I., & Popovych, I. (2020). Emotional Intelligence in the Structure of Adaptation Process of Future Healthcare Professionals. *Revista Inclusiones*, *7*(3), 447-460. https://www.revistainclusiones.org/index.php/inclu/article/view/1347

Halian, I. M. (2019). Personal determinants of responsibility of future educators. *Insight: the psychological dimensions of society*, *1*, 15-21. https://doi.org/10.32999/2663-970X/2019-1-2

Halian, I., Popovych, I., Nesin, Y., Zavatskyi, Y., Vashchenko, I., Muliar, O., & Marchenko, A. (2021). Experimental Research of the Sense-Value Regulation of Future Teachers in Academic and Professional Activity. *The Romanian Journal for Multidimensional Education*, *13*(4), 509-523. https://doi.org/10.18662/rrem/13.4/495

Hen, M., & Sharabi-Nov, A. (2014). Teaching the teachers: emotional intelligence training for teachers. *Teaching Education*, *25*(4), 375-390. https://doi.org/10.1080/10476210.2014.908838

Kolly-Shamne, A. V., & Tokareva, N. M. (2021). Age and gender features of the correlation between the emotional evaluation of commercials and the intelligence indicators of high school and university students. *Insight: the psychological dimensions of society*, 6, 41-55. https://doi.org/10.32999/2663-970X/2021-6-4

Kovalchuk, V., Prylepa, I., Chubrei, O., Marynchenko, I., Opanasenko, V., & Marynchenko, Y. (2022). Development of Emotional Intelligence of Future Teachers of Professional Training. *International Journal of Early Childhood Special Education (INT-JECSE)*, *14*(1), 39-51.

Kuk, A., Czechowski, M., & Femiak, J. (2015). Social competence and emotional intelligence of future PE teachers and their participation in psychological workshops. *Humen Movement, 16*(3), 163-170. https://doi.org/10.1515/humo-2015-0042

Mialkovska, L., Cherneta, S., Sushyk, I., Martyniuk, Ya., Maiboroda, O., & Savchuk, N. (2023). Information, Digital, and Socio-Psychological Technologies in the Training of Specialists in the Social Sphere. *Studies in Media and Communication, 11*(7), 297-312

Molero Jurado, M.D.M., Simón Márquez, M.D.M., Martos Martínez, Á., Barragán Martín, A.B., Pérez-Fuentes, M.D.C., & Gázquez Linares, J.J. (2022). Qualitative Analysis of Use of ICTs and Necessary Personal Competencies (Self-Efficacy, Creativity and Emotional Intelligence) of Future Teachers: Implications for Education. *Sustainability*, *14*(19), 12257. https://doi.org/10.3390/su141912257

Pavlyk, N. V., & Radzimovska, O. V. (2023). Psychological health of teachers of the New Ukrainian School as the basis of their psychological readiness for creative professional activity. *Insight: The Psychological Dimensions of Society*, *9*, 130-147. https://doi.org/10.32999/KSU2663-970X/2023-9-8

Popovych, I., Machynska, N., Yaremchuk, N., Korniat, V., & Kurinna, V. (2022). Psycho-emotional states of future specialists in a socionomic area under lockdown and martial law: comparative analysis. *Amazonia Investiga*, *11*(56), 150-158. https://doi.org/10.34069/AI/2022.56.08.16

Popovych, I., Pavliuk, M., Sirant, N., Zhigarenko, I., & Serhieienkova, O. (2021a). Research of relationship of functional-role positions (ego-states) with indicators of future specialists' independence. *Amazonia Investiga*, *10*(41), 85-95. https://doi.org/10.34069/AI/2021.41.05.8

Popovych, I., Shcherbyna, V., Sultanova, L., Hulias, I., & Mamchur, I. (2021b). Research of social expectations' properties of future specialists of socionomic profile. *Amazonia Investiga*, *10*(39), 40-49. https://doi.org/10.34069/AI/2021.39.03.4

Porras Carmona, S., Pérez Dueñas, C., Checa Fernández, P., & Luque Salas, B. (2020). Competencias emocionales de las futuras personas docentes: un estudio sobre los niveles de inteligencia emocional y empatía. *Revista Educación*, *44*(2), 80-95. https://dx.doi.org/10.15517/revedu.v44i2.38438

Rojas Samanez, L.R., Arias Chávez, D., Norabuena Figueroa, R.P., Mescua Figueroa, A. C., Palacios Garay, J.P., & Caurcel Cara, M.J. (2019). Emotional quotient of the Administration and Commercial Management students of a private university. *Apuntes Universitarios*, *9*(1), 1-18. https://doi.org/10.17162/au.v9i1.346

Sanabrias-Moreno, D., Sánchez-Zafra, M., Zagalaz-Sánchez, M. L., & Cachón-Zagalaz, J. (2023). Emotional Intelligence, Quality of Life, and Concern for Gender Perspective in Future Teachers. *Sustainability*, *15*(4), 3640. https://doi.org/10.3390/su15043640

Semenov, O., Oleshko, P., Tsymbal, S., Liashko, V., Shevchenko, A., & Popovych, I. (2021). Research of social expectations of university students in the dimensions of psychological well-being. *Revista Eduweb*, *15*(3), 124-138. https://doi.org/10.46502/issn.1856-7576/2021.15.03.10

Tsiuniak, O. P. (2023). Formation of emotional culture among future primary school teachers during the war. *The image of a modern teacher*, *3*(204), 48-51. https://doi.org/10.33272/2522-9729-2022-3(204)-48-51

Tsiuniak, O. (2021). *Professional training of future primary school teachers in conditions of digital transformation of education*. Ivano-Frankivsk: Kushnir H. M. URL: http://hdl.handle.net/123456789/11656

Wang, J., Wang, Y., Zhu, N., & Qiu, J. (2022). Special education teachers' emotional intelligence and its relationships with social support, work engagement and job performance: a job demands-resources theory's perspective. *International Journal of Developmental Disabilities*, 1-10. https://doi.org/10.1080/20473869.2022.2149893

Yaremchuk, N. (2022). Distance learning in the system of professional training of primary school teachers: retrospective analysis. *Continuing Professional Education: Theory and Practice*, *1*, 112-118. https://doi.org/10.28925/1609-8595.2022.1.13

Zarytska, V. V. (2019). Method of determining the level of development of emotional intelligence of the personality. *Theory and practice of modern psychology*, *3*(2), 37-41. https://doi.org/10.32840/2663-6026.2019.3-2.7