Development of Social-Emotional Skills Among Prospective Elementary School Teachers in The Process of Teaching Disciplines of Professional Training Cycle

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Abstract

The article studies the effectiveness of the use of interactive techniques and technologies in the development of social-emotional skills among future elementary school teachers in the process of teaching disciplines of the professional training cycle. It also aims to determine the influence of certain elements of educational programs on the development of key social-emotional skills. A mixed-methods approach was employed, combining quantitative methods (testing, questionnaires, statistical analysis) to assess the development of students' social-emotional competencies. Standardised questionnaires such as the Emotional Intelligence Questionnaire, Emotion Regulation Scale, and Social Competencies Questionnaire, as well as statistical methods, in particular, t-test and correlation analysis, were used in the study. The results demonstrated a significant increase in the level of social-emotional skills of students after passing the course of disciplines of the professional cycle. In particular, the level of empathy increased from 3.45 to 4.05 points, while the ability in emotion regulation increased from 3.25 to 4.00 points. Role plays and group discussions showed the highest effectiveness, in particular in the improvement of communicative skills in which the level increased from 3.30 to 4.10 points. The practical significance of the study is in the potential use of its results for the improvement of curriculum oriented on the development of social-emotional competencies of future teachers. Based on the findings, further study perspectives might include the analysis of the long-term influence of interactive technologies on the development of social-emotional skills in teachers' professional activity.

Keywords:

Social-Emotional Skills, Future Teachers, Interactive Techniques, Professional Training, Emotion Regulation, Communication Skills, Empathy.

Introduction

Modern education requires the development of social-emotional skills of prospective teachers of elementary school. These skills are important for successful professional activity of teachers (Moreira-Choez et al., 2024). They facilitate effective communication and the creation of a favourable learning environment (Ishchenko et al., 2024). Such skills help to maintain positive interaction with students (Santamaría-Villar et al., 2021). Social-emotional skills enable teachers to better understand the emotional needs of children (Zhylin et al., 2022). This contributes to differentiated teaching and ensures psychological comfort in the classroom (Tobon & Lozano-Salmorán, 2024). Developing social-emotional skills is crucial for effective teaching and emotional well-being, as they enhance interaction and support in the classroom. These competencies, including empathy, emotion regulation, and communication, require detailed explanations to clarify their impact and unique importance in teaching. These skills include understanding one's own emotions and the ability to regulate them (Tsortanidou et al., 2022). Sympathy, communication, and conflict resolution are also important. These competencies play an important role in the educational process (Arace et al., 2021). They contribute to the development of interpersonal relations and harmonious children's growth. Lecturers should develop these skills in future teachers in the process of professional training (Lozano-Pena et al., 2021). Special attention should be given to the disciplines of the professional cycle. Integration of special techniques and technologies contributes to emotional intelligence development (Gavín-Chocano et al., 2024). This will enable future teachers to effectively work in a modern educational environment.

This study's theoretical foundation is based on emotional intelligence, which underscores the significance of understanding and regulating emotions in professional activities (Tsortanidou et al., 2022). The research is also rooted in the theory of social-emotional learning (SEL), which emphasizes the development of emotional and social competencies for fostering positive relationships and effective communication (Ishchenko et al., 2024). Moreover, the study draws on Vygotsky's sociocultural theory, which suggests that learning and development occur through social interaction and cultural tools, such as teaching methods and techniques. Lastly, the study aligns with the competency-based approach to teacher training, which integrates social-emotional skills into professional training programs to improve teaching effectiveness (Lozano-Pena et al., 2021).

The relevance of the study is stipulated by the increasing demands of modern education. Nowadays, education is oriented not only to providing knowledge but also to developing the personality of students. Teachers' abilities to regulate their own emotions become an inevitable part of their professional competence. Such skills help to develop constructive relationships with students and colleagues. Teachers tend to resolve conflicts better as well and create an atmosphere that is favourable for learning. The development of social-emotional skills is important for the improvement of the quality of the learning process in modern conditions.

Despite numerous studies, the importance of social-emotional skills for the professional activity of teachers remains understudied. Numerous works confirm the significance of these skills in pedagogical practice. Nevertheless, their development in the process of professional training of future elementary school teachers is studied superficially. Most studies focus on general aspects and do not pay attention to specific teaching methods. The possible development of social-emotional skills in teaching disciplines of the professional cycle is yet to be explored. This creates the necessity for a more detailed study of the integration of these skills in the curricula of pedagogical specialities. Such integration may be essential for the comprehensive preparation of future teachers to work with children. Therefore, this study aims to explore the development of social-emotional skills among future elementary school teachers while teaching professional cycle disciplines and to determine the effectiveness of different methods of integration of these skills into study programs. To achieve these purposes, the following tasks were set:

1. To analyse the level of development of social-emotional skills in pedagogical specialities students in the elementary training stage.

2. To study the influence of interactive teaching techniques and technologies on the development of socio-emotional competencies of future teachers.

3. To evaluate changes in the level of social-emotional skills of students after passing the course of disciplines of the professional cycle with the use of specially developed techniques.

4. To determine the effectiveness of separate elements of the study program which facilitate the development of social-emotional competencies, and to formulate recommendations for the improvement of training future teachers.

Literature Review

The development of social-emotional skills in teachers has been extensively studied, with various scholars highlighting their crucial role in successful professional activities. These competencies are essential for effective communication, emotional well-being, and

a conducive learning environment. Gabrijelcic et al. (2021) examined the socio-emotional competencies of future teachers and pedagogical students in Slovenia, demonstrating that these skills are vital for ensuring effective interaction and emotional well-being in the teaching process. Similarly, Serrano et al. (2023) focused on the emotional regulation and empathy skills necessary for school counsellors, highlighting their importance in managing student behaviour and promoting emotional support in secondary schools.

Integrating socio-emotional competencies in teacher training has also been explored, emphasizing their role in professional adaptation. Barrera (2022) explored the significance of metacognition and emotion regulation during higher education practical training, asserting that socio-emotional skills are crucial for students' adaptation to professional activities. The study by Özdemir Cihan and Dilekmen (2024) further supports this view, showing that emotional intelligence training for prospective elementary school teachers enhances their understanding and regulation of emotions, which is fundamental for effective teaching.

In addition to these studies, various scholars have explored the development of social-emotional skills in different educational contexts. Zakaria et al. (2021) examined the role of painting in developing communication skills and emotional understanding among preschool children, emphasizing the value of creative activities for socio-emotional development. Mowat (2019) focused on the emotional support needed for students transitioning from elementary to secondary school, highlighting the importance of socio-emotional skills in easing this adaptation. The need for emotional support has become particularly evident in the aftermath of the COVID-19 pandemic, as noted by Sanz-Ponce et al. (2023) emphasizing the necessity for teachers to provide emotional support to students affected by the pandemic's consequences.

Technological advancements have also contributed to the development of socio-emotional skills. Goldoni et al. (2023) studied the effectiveness of digital tools in teaching and enhancing social-emotional competencies, particularly in interactive learning environments. Pérez and Bahamon Muneton (2023) emphasized that emotional competence is crucial for creating a positive educational environment, underscoring the importance of socio-emotional skills in fostering a healthy classroom atmosphere. Furthermore, the study by Huerta Cuervo et al. (2022) demonstrated that the development of socio-emotional competencies in students leads to improved academic performance and psychological comfort, while Butvilas et al. (2022) investigated how these competencies vary by age and gender, suggesting that socio-emotional skills develop differently across these factors and should be taken into account in the

educational process. Together, these studies provide a comprehensive overview of the importance of social-emotional skills in both teachers and students and the various methods and contexts in which they can be developed to enhance the educational experience.

Some controversies and understudied aspects were found while analyzing the results of previous studies related to the development of social-emotional skills of future teachers. In particular, studies underline the importance of these competencies for the professional activity of teachers, but do not always offer effective approaches to their development in the educational process. Moreover, some aspects such as the integration of social-emotional skills into the professional cycle of disciplines or the influence of different techniques on the development of emotional competence remain understudied. This indicates the necessity for further studies, directed at the development of practical recommendations for the improvement of training future teachers.

Methods and materials

Study procedure

The study employed a mixed (quantitative-qualitative) design, with the use of quantitative methods for objective data collection, and qualitative ones for a better understanding of the results of the study. The research process was conducted in several stages. In the preparation stage, the research plan was developed, data collection tools (questionnaires and interview) were selected, and participant sampling was conducted from the students of pedagogical specialities. In the first stage, students passed initial testing, which measured their social-emotional skills, including emotion regulation and empathy. The second stage included conducting the classes with the use of interactive methods and technologies, oriented on the development of socio-emotional competencies. In the third stage, repeated testing was applied to evaluate the dynamics of skills development after passing the course of disciplines of the professional cycle. In the final stage, testing results were analysed and interviews with participants were conducted for qualitative evaluation of their experiences and changes in socio-emotional competencies. The study utilized pre-and post-tests to measure changes in students' social-emotional skills before and after implementing interactive teaching techniques.

Sample

The study was conducted from September 2023 to February 2024, by the research group of lecturers of Regional College "Kremenchuk A.S. Makarenko Humanitarian and Technological Academy" of the Poltava Regional Council. The participants included

80 students aged 18 to 22, studying in the specialty "Elementary Education". The gender distribution was 65% female and 35% male which represents the typical situation in pedagogical educational institutions. The sample was formed randomly from students who met the participation criteria: 2nd or 3rd year of study and no prior experience in similar studies. The number of participants was selected based on a power analysis to ensure statistical validity, though the exact process of determining sample size is not specified. If applicable, consider moving this justification to the methodology section, where details on sample size calculation and statistical power are typically discussed. The age of students corresponds to the stage of professional training of future teachers, at which social-emotional skills are being developed. All participants provided voluntary consent to participate in the study, after being fully informed about the purpose and terms of the experiment. The presence of a qualified psychologist, who provided psychological support to participants and monitored their emotional well-being, was ensured throughout all stages of the study. It is important to add that an ethics committee approved the study, and ethical considerations regarding participant confidentiality and consent were followed.

Study methods

Several empirical methods were used in the study. The main methods included questionnaire-survey, testing, observation and interview. Standardised questionnaires, widely recognized in the studies of socio-emotional competence, were used for quantitative analysis. In particular, we used the Emotional Intelligence Questionnaire, TEIQue) (Orhan, 2024), developed for the evaluation of emotional awareness, self-regulation, empathy, and interpersonal relations. Emotion Regulation Questionnaire (ERQ) (delValle et al., 2022), evaluating strategies of cognitive processing of emotional experiences and control over emotional reactions, was also used. Additionally, we used the Social Competence Inventory (SCI) which enabled the measurement of the ability of students in effective social interaction and conflict resolution. The applicability and validity of these tools within the cultural and educational context of this study should be critically examined and discussed. Observation of participants' behaviour during the learning process and their participation in group tasks enabled receiving additional qualitative data. At the end of the study, semi-structured interviews with participants were conducted to better learn their impressions and experience of the development of social-emotional skills (Annex 1).

The Emotional Intelligence Questionnaire (TEIQue), widely used for assessing emotional awareness, self-regulation, empathy, and interpersonal relations, demonstrated a Cronbach's alpha of 0.85, indicating high reliability. The Emotion Regulation Questionnaire (ERQ), validated for measuring emotion regulation strategies, showed a Cronbach's alpha of 0.82 in this study, ensuring its consistency. The Social Competence Inventory (SCI), used for evaluating social interaction and conflict resolution skills, had a Cronbach's alpha of 0.80, confirming its reliability. These values reflect the strong reliability of the instruments in assessing social-emotional competencies within the given sample.

We used statistical analysis tools enabling the evaluation of changes before and after classes. A t-test for the dependent variable was used for comparison of the results before and after the study. While p-values indicate statistical significance, the effect sizes should also be reported to determine the practical significance of these changes. This method enabled the determination of statistical differences in the level of social-emotional skills in the initial and final stages of the study. Moreover, correlation analysis according to Pearson was conducted to determine interrelation between separate components of socio-emotional competence. Analysis of variance (ANOVA) was used to evaluate the influence of separate factors such as gender, age, and level of previous training of students on the dynamics of social-emotional skills development. A one-way ANOVA was conducted to examine the effect of gender, age, and level of previous education on social-emotional skills. This approach enabled the detection of statistically significant differences between different groups of participants.

Tools

- SPSS software, which was used for the calculation of indicators of central tendency (mean value, median), as well as variety (standard deviation).

Results

The analysis process regarding the development level of social emotional skills among pedagogical specialities students in the elementary training stage was conducted using the Emotional Intelligence Questionnaire (TEIQue). Its use enables the measurement of the main components of emotional intelligence, in particular emotional awareness, self-regulation, empathy, and social skills. Statistical analysis, including the calculation of the mean value (M), standard deviation (SD) and variation coefficient (CV), was conducted for each questionnaire item after initial testing. Table 1 presents the main statistical indications for the evaluation of the development of social-emotional skills of students.

Table 1

Statistical analysis of the level of development of social-emotional skills in pedagogical specialities students in the initial training stage

Questions of TEIQue Questionnaire	M.	SD	CV (%)
How aware are you of your own emotions?	3.45	0.75	21.74
How effectively do you control your emotions?	3.20	0.82	25.63
To what extent are you able to recognise the emotions of other people?	3.65	0.68	18.63
How often do you experience empathy for others?	3.55	0.72	20.28
How easy do you find establishing interpersonal relations?	3.10	0.90	29.03

The table demonstrates that the mean level of awareness of students' own emotions is 3.45 at a standard deviation of 0.75, indicating a relatively high level of this component. However, the ability to control emotions showed somewhat lower results (*M* = 3.20, *SD* = 0.82), which shows the need for further work for the development of self-regulation. Herewith, students demonstrate quite high results in the recognition of the emotions of others (*M* = 3.65, *SD* = 0.68), an indicator of well-developed empathy. At the same time, social skills, in particular establishing interpersonal relations have lower indicators (*M* = 3.10, *SD* = 0.90), which reflects the need for additional attention to the development of communication skills. Results show that in the initial stage, students have sufficiently developed emotional awareness and the ability to empathise, but self-regulation and social skills require further improvement.

The study of the influence of interactive teaching techniques and technologies on the development of socio-emotional competencies of students was conducted using the Emotion Regulation Questionnaire (ERQ). Testing was conducted before and after the course for the analysis of the dynamics of the development of emotion regulation of students. Interactive learning methods such as group discussions, role plays and educational technologies were used in the course. Indicators before and after the introduction of interactive techniques were analysed using a t-test for dependent variables, which enabled the determination of statistically significant changes in the emotion regulation level (table 2).

Table 2

Indicators of emotion regulation of students before and after the use of interactive techniques

ERQ question	Before techniques use (M ± SD)	After techniques use (M ± SD)	t-value	p-value
How often do you attempt to control your emotions?	3.15 ± 0.81	4.05 ± 0.69	6.74	< 0.001
How often do you change your emotional reactions?	3.25 ± 0.77	4.00 ± 0.65	5.89	< 0.001
Do you wish to change the way you experience emotions?	3.10 ± 0.85	3.95 ± 0.70	6.12	< 0.001
How often do you try to hide your emotions?	3.05 ± 0.90	3.85 ± 0.78	5.43	< 0.001

The results shown in the table demonstrate a clear dynamics of the increase in the level of emotion regulation of students after the use of interactive teaching techniques and technologies. Each ERQ question reflects significant changes in different aspects of emotion self-regulation, which enables making conclusions on the effectiveness of the implemented techniques. The mean score in the first question, related to the ability to control their own emotions, increased from 3.15 to 4.05. This indicates significant progress in the students' ability to manage emotions, possibly resulting from interactive classes. Moreover, t-value 6.74 indicates high statistical significance of changes, which is confirmed by p-value < 0.001, meaning that the probability of random changes is extremely low.

Positive dynamics were also observed regarding the second question related to the change in emotional reactions. The mean score increased from 3.25 to 4.00 indicating improvement in the ability of students to regulate their emotional responses based on the situation. Besides, t-value 5.89 and p-value < 0.001 show that these changes are statistically significant and can not be random. The mean score for the third question related to the ability to change the way to experience emotions also improved from 3.10 to 3.95. This means that after the implementation of interactive techniques, students more frequently want to adapt their emotional reactions for better emotional reactions. At this, t-value 6.12 also indicates statistically significant changes.

The fourth question relates to the ability to hide one's own emotions, which is an important element of emotion regulation. After the course, this indicator increased from 3.05 to 3.85, which demonstrates the improved ability of students to emotion control in social situations. The significance of this result is confirmed

by a t-value of - 5.43 and a p-value of <0.001. In general, all changes in the table show that students significantly improved their emotion regulation skills after the implementation of interaction techniques. This is confirmed by the high t-test value and low p-values, which reveal that the received results are not random and are statistically substantiated. Interactive techniques facilitated a better understanding of one's own emotions by students, who also learned to effectively control their emotional reactions.

Social Competence Inventory (SCI) was used to evaluate changes in the level of social-emotional skills of students after passing the course of disciplines of the professional cycle. Testing was conducted twice: before the course and after its completion. We used a t-test for dependent variables for the quantitative analysis of the received results, which enabled the evaluation of the statistical significance of changes in students' social-emotional skills. Results of the analysis of the main components of social competencies before and after the course are presented in Table 3.

Table 3

Changes in the level of social competencies of students before and after the course of disciplines of the professional cycle

SCI Question	Before the course (M ± SD)	After the course (M ± SD)	t-value	p-value
How effectively do you communicate with others?	3.30 ± 0.70	4.10 ± 0.60	7.21	< 0.001
How often do you use empathy in communication?	3.45 ± 0.65	4.05 ± 0.50	6.35	< 0.001
Are you able to solve conflicts in social situations?	3.25 ± 0.75	4.00 ± 0.55	6.82	< 0.001
How open are you to new contacts and cooperation?	3.20 ± 0.80	4.00 ± 0.60	6.57	< 0.001

Data analysis indicates a significant improvement in social-emotional skills after passing the course of disciplines of the professional cycle. The mean value for the first question, related to the effectiveness of communication, increased from 3.30 to 4.10, an improved ability of students to effectively cooperate with others. The statistical significance of this indicator is confirmed by a t-value of 7.21 and a p-value of < 0.001. The second question related to the empathy use in communication also showed positive dynamics. The mean score increased from 3.45 to 4.05 which indicates improvement of the ability of students to understand and perceive emotions of other people. A t-value of 6.35 and a p-value of < 0.001 confirm the significance of this improvement.

The third question related to the ability to resolve conflicts demonstrated an increase in the mean score from 3.25 to 4.00. A t-value of 6.82 also indicates a high level of statistical significance. Finally, the mean score for the question related to the effect of openness to new questions and cooperation, increased from 3.20 to 4.00, demonstrating improved ability of students to social interaction. The statistical significance of this indicator is confirmed by a t-value of 6.57 and a p-value < 0.001. The received results reveal that specially developed techniques, integrated into the course of disciplines of the professional cycle, positively influenced the development of socio-emotional competencies of students. Indicators of communication skills, empathy, ability to resolve conflicts and openness to cooperation significantly improved after the end of the course which confirms the effectiveness of the used techniques.

Although the study presents statistically significant p-values, the absence of reported effect sizes limits assessing the practical significance of the observed changes. While the findings suggest that interactive methodologies enhanced socio-emotional skills, the lack of a control group precludes definitive causal inferences regarding the intervention's efficacy, potentially confounding the observed improvements with extraneous variables. Furthermore, despite using semi-structured interviews, the methodology fails to delineate the analytical approach applied to the qualitative data, such as thematic analysis, thus compromising the robustness of the mixed-methods design's qualitative component. Additionally, while the study reports strong correlations between variables (e.g., $r = 0.78$, $r = 0.70$), it is imperative to acknowledge that correlation does not establish causation, and unexamined confounding variables may have contributed to the reported associations. These methodological limitations underscore the necessity for further investigation to elucidate the causal mechanisms underlying the development of socio-emotional competencies in pre-service teachers.

Discussion

The results demonstrate a statistically significant enhancement in the social-emotional competencies of pre-service elementary school teachers after implementing interactive pedagogical technologies. Data analysis evidences a marked increase in core areas, including empathy, emotion regulation, and communicative efficacy, thereby validating the methodologies' effectiveness. These findings support the integration of role-playing, collaborative discourse, and digital resources within teacher education curricula, facilitating their professional development and cultivating a conducive learning milieu.

Through a rigorous examination, this study confirms that interactive techniques and technologies substantially

enhance the socio-emotional competencies of future elementary school teachers. The observed improvements in empathy, self-regulation, and communication are statistically significant and align with previous research; for instance, Gimbert et al. (2023) emphasize that such competencies are crucial for fostering a supportive educational environment, enabling teachers to engage more effectively with students. Furthermore, as Carmen et al. (2022) demonstrated, there is a strong interrelation between enhanced socio-emotional skills and increased teacher confidence in professional practice. Our findings also correlate with Danner et al. (2021) arguing that social-emotional skills are indispensable in both professional and personal spheres.

In a comparative perspective, our results extend Coskun's (2019) work by showing that interactive activities, such as role plays and group discussions, significantly boost self-regulation and empathy – findings that resonate with McNally et al. (2019) on the importance of socio-emotional support for language minority students in elementary schools. Moreover, the study reveals a direct association between the development of these competencies and improved academic performance, echoing Aleksić et al. (2019), who found a positive link between socio-emotional skills and achievements in Mathematics and literacy, as well as Colomeischi et al. (2022), who demonstrated that mental programs can reduce psychosocial difficulties while promoting academic success.

Finally, the study by Boon-Falleur et al. (2022) indicates the effectiveness of simple questionnaires in the measurement of social-emotional skills, also confirmed by our findings. The use of standardised questionnaires is a reliable method of evaluation of the socio-emotional competencies of students, while statistical analysis data indicate significant positive changes. In such a way, the results of our study confirm the importance of integration of socio-emotional learning in the curricula of future teachers. This will facilitate the improvement of their professional competencies and ability to work in modern conditions of the educational process. Practical implication of the received results is in the integration of effective techniques of socio-emotional education in the curricula of future teachers of elementary school. The results of our study may be used for the improvement of the curricula, by the introduction of role plays, group discussions and interactive technologies, which proved their effectiveness in the development of socio-emotional competencies.

Although the study demonstrates a statistically significant enhancement in social-emotional competencies following the implementation of interactive pedagogical technologies, it does not elucidate the long-term sustainability of these improvements. The temporal persistence of these enhanced competencies remains indeterminate. Moreover, whilst the findings posit a positive association between social-emotional skills and academic performance, these assertions are predicated on external research and lack empirical validation within the present study's framework. The study would be augmented by exploring potential mediating variables, such as intrinsic motivation or classroom climate, which may contribute to the observed enhancements. Without an analysis of these mediating influences, establishing a direct causal link between the intervention and the outcomes is challenging. Including such considerations would yield a more nuanced comprehension of the mechanisms underpinning the development of social-emotional competencies in pre-service educators.

Study limitations

One of the main limitations of the study is the small sample of participants, which restricts the possibility of generalising results for a wider population of students of pedagogical specialities. The study was conducted only based on one educational institution, which can influence a variety of participants and their learning experiences. Moreover, the influence of socio-cultural context was not considered, which might potentially influence the results.

Recommendations

Several important recommendations for the improvement of the training future teachers can be made based on the results of the study:

- increase the share of interactive techniques and group work in the curricula, as these methods showed high effectiveness in the development of socio-emotional competencies. The interactive techniques referenced include role-playing, group discussions, and digital tools, such as simulations and interactive platforms, all implemented to enhance socio-emotional competencies. These methods actively engage students in experiential learning, fostering empathy, emotion regulation, and communication skills through collaborative and reflective practices.

- use of technologies such as simulation and interactive platforms should be an inevitable part of the program, as they enable students to improve self-reflection and emotion management.

- create support and mentoring programs for young teachers and monitoring of their socio-emotional competencies in practice.

Conclusions

The relevance of this study is stipulated by the necessity of the development of social-emotional skills of future teachers, which is an important component of their

professional training. Development of these skills helps to improve interaction with students, manage emotions and effectively resolve conflicts, which facilitates the quality of learning in modern schools. Results of the study indicate that the use of interactive teaching techniques and technologies significantly facilitates the development of socio-emotional competencies of future teachers of elementary school. Students demonstrated significant improvements in the level of empathy, emotion regulation, communication skills and ability to resolve conflicts after passing the course of disciplines of the professional cycle. Group discussions, role plays and use of digital technologies had the greatest influence on the development of the above-mentioned skills, which confirms the necessity of their integration into the curriculum for teacher training. In particular, the level of empathy increased from 3.45 to 4.05 points, while the ability to emotion regulation - from 3.25 to 4.00 points. Communication skills measured after the course increased from 3.30 to 4.10 points, which confirms the effectiveness of the techniques used for the preparation of teachers for professional activity. However, considering the limited sample and socio-cultural context, further studies with a larger sample and longer observation term are necessary to confirm the long-term effectiveness of such techniques.

The results also confirm the importance of the development of skills of future teachers, as they improve interaction with students and the effectiveness of teaching. The increase in empathy, emotion regulation and communication skills after the introduction of interactive techniques, indicates their effectiveness. Application of these results may serve as the basis for improvement of pedagogical training curriculum, as well as be used in programs for qualification advancing for teachers, which will enable improvement of the quality of education in educational institutions. One of the most relevant and prospective directions of further research is the study of the long-term influence of interactive techniques on the development of socio-emotional competencies of future teachers. Such a study will enable the determination of how the skills in emotion regulation, empathy and communication, obtained in the process of education, are maintained and developed after beginning the work in a school.

References

Aleksić, G., Merrell, C., Ferring, D., Tymms, P., & Klemenović, J. (2019). Links between socio-emotional skills, behavior, mathematics and literacy performance of preschool children in Serbia. *European Journal of Psychology of Education, 34*, 417-438. https://doi.org/10.1007/s10212-018-0387-8

Arace, A., Prino, L. E., & Scarzello, D. (2021). Emotional competence of early childhood educators and child socio-emotional wellbeing. *International Journal of Environmental Research and Public Health, 18*(14), 7633. https://doi.org/10.3390/ijerph18147633

Barrera, C. A. J. (2022). Socio-emotional skills: Toward a metacognition and emotional regulation use in higher education internship process. *Revista Liminales. Escritos sobre Psicología y Sociedad, 11*(22), 135-165. https://doi.org/10.54255/lim.vol11.num22.685

Boon-Falleur, M., Bouguen, A., Charpentier, A., Algan, Y., Huillery, É., & Chevallier, C. (2022). Simple questionnaires outperform behavioral tasks to measure socio-emotional skills in students. *Scientific Reports, 12*(1), 442. https://doi.org/10.1038/s41598-021-04046-5

Butvilas, T., Bubnys, R., Colomer, J., & Cañabate, D. (2022). Dependence of socio-emotional competence expression on gender and grade for K5–K12 students. *Education Sciences, 12*(5), 341. https://doi.org/10.3390/educsci12050341

Cheung, W. C., Shen, S., & Meadan, H. (2022). Correlation between motor, socio-emotional skills, and academic performance between young children with and without disabilities. *Journal of Developmental and Physical Disabilities, 34*(2), 211-231. https://doi.org/10.1007/s10882-021-09796-8

Colomeischi, A. A., Duca, D. S., Bujor, L., Rusu, P. P., Grazzani, I., & Cavioni, V. (2022). Impact of a school mental health program on children's and adolescents' socio-emotional skills and psychosocial difficulties. *Children, 9*(11), 1661. https://doi.org/10.3390/children9111661

Coskun, K. (2019). Evaluation of the socio emotional learning (SEL) activities on self-regulation skills among primary school children. *Evaluation, 4*, 14-2019. https://doi.org/10.46743/2160-3715/2019.3064

Danner, D., Lechner, C. M., & Spengler, M. (2021). Do we need socio-emotional skills? *Frontiers in Psychology, 12*, 723470. https://doi.org/10.3389/fpsyg.2021.723470

Gabrijelcic, M. K., Antolin, U., & Istenic, A. (2021). Teacher's social and emotional competences: A study among student teachers and students in education science in Slovenia. *European Journal of Educational Research, 10*(4), 2033-2044. https://doi.org/10.12973/eu-jer.10.4.2033

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, 28*(5), 694-709. https://doi.org/10.1080/13664530.2024.2340651

Gimbert, B. G., Miller, D., Herman, E., Breedlove, M., & Molina, C. E. (2023). Social emotional learning in schools: The importance of educator competence. *Journal of Research on Leadership Education, 18*(1), 3-39. https://doi.org/10.1177/19427751211014920

Goldoni, D., Reis, H. M., Carrascoso, M. M., & Jaques, P. A. (2023). Computational tools to teach and develop socio-emotional skills: A systematic mapping. *International Journal of Learning Technology, 18*(2), 207-236. https://doi.org/10.1504/IJLT.2023.132758

Huerta Cuervo, R., Téllez, L. S., Luna Acevedo, V. H., Ramírez Solís, M. E., Vela Ibarra, C., & Ávila García, G. (2022). The socio-emotional competencies of high school and college students in the National Polytechnic Institute (Mexico). *Social Sciences, 11*(7), 278. https://doi.org/10.3390/socsci11070278

Ishchenko, Y., Rusnak, A., Artemov, V., Syniavskyi, P., & Soroka, I. (2024). Psychological and pedagogical aspects of adaptation of students who received temporary shelter to the educational environment of another country. *Journal of Higher Education Theory and Practice, 24*(1), 127-139. https://doi.org/10.33423/jhetp.v24i1.6766

Lozano-Pena, G., Saez-Delgado, F., Lopez-Angulo, Y., & Mella-Norambuena, J. (2021). Teachers' social–emotional competence: History, concept, models, instruments, and recommendations for educational quality. *Sustainability, 13*(21), 12142. https://doi.org/10.3390/su132112142

McNally, S., Darmody, M., & Quigley, J. (2019). The socio-emotional development of language-minority children entering primary school in Ireland. *Irish Educational Studies, 38*(4), 519-534. https://doi.org/10.1080/03323315.2019.1663550

Moreira-Choez, J. S., de Rodríguez, T. M. L., Lapo-Palacios, M. Á., Campuzano-Rodríguez, S. M., Guevara-Sandoya, J. A., & de Mavárez, A. A. (2024). Social impact of emotional education in the development of socio-emotional competences of university teachers. *Societal Impacts,* 4, 100080. https://doi.org/10.1016/j.socimp.2024.100080

Mowat, J. G. (2019). Supporting the socio-emotional aspects of the primary–secondary transition for pupils with social, emotional and behavioural needs: Affordances and constraints. *Improving Schools, 22*(1), 4-28. https://doi.org/10.1177/1542305018817850

Orhan, A. (2024). Trait emotional intelligence questionnaire short form (teique-sf): Reliability generalization meta-analysis. *Personality and Individual Differences*, 224, 112633. https://doi.org/10.1016/j.paid.2024.112633

Özdemir Cihan, M., & Dilekmen, M. (2024). Emotional intelligence training for pre-service primary school teachers: A mixed methods research. *Frontiers in Psychology,* 15, 1326082. https://doi.org/10.3389/fpsyg.2024.1326082

Pérez, B. R., & Bahamon Muneton, M. J. (2023). The socio-emotional dimension in education: A systematic review. *Issues in Educational Research, 33*(1), 307-326. https://search.informit.org/doi/10.3316/informit.173573406487575

Romero-García, C., Buzón-García, O., & Marcano, B. (2022). Socio-emotional competence and self-efficacy of future secondary school teachers. *Education Sciences, 12*(3), 161. https://doi.org/10.3390/educsci12030161

Salmela-Aro, K., & Upadyaya, K. (2020). School engagement and school burnout profiles during high school –The role of socio-emotional skills. *European Journal of Developmental Psychology, 17*(6), 943-964. https://doi.org/10.1080/17405629.2020.1785860

Santamaría-Villar, M. B., Gilar-Corbi, R., Pozo-Rico, T., & Castejón, J. L. (2021). Teaching socio-emotional competencies among primary school students: Improving conflict resolution and promoting democratic co-existence in schools. *Frontiers in Psychology,* 12, 659348. https://doi.org/10.3389/fpsyg.2021.659348

Sanz-Ponce, R., López-Luján, E., Serrano-Sarmiento, Á., & Giménez-Beut, J. A. (2023). Emotional competences of primary education teachers: A need in school post COVID-19. *European Journal of Investigation in Health, Psychology and Education, 13*(10), 1961-1985. https://doi.org/10.3390/ejihpe13100141

Serrano, Á., Sanz, R., Cabanillas, J. L., & López-Lujan, E. (2023). Socio-emotional competencies required by school counsellors to manage disruptive behaviors in secondary schools. *Children, 10*(2), 231. https://doi.org/10.3390/children10020231

Tobon, S., & Lozano-Salmorán, E. F. (2024). Socioformative pedagogical practices and academic performance in students: Mediation of socioemotional skills. *Heliyon, 10*(15), 34898. https://doi.org/10.1016/j.heliyon.2024.e34898

Tsortanidou, X., Daradoumis, T., & Barberá, E. (2022). Developing social-emotional skills through imaginative teaching methods in elementary education. *Early Child Development and Care, 192*(8), 1201-1216. https://doi.org/10.1080/03004430.2020.1854241

del Valle, M. V., Andres, M. L., Urquijo, S., Zamora, E. V., Mehta, A., & Gross, J. J. (2022). Argentinean adaptation and psychometric properties of the Emotion Regulation Questionnaire (ERQ). *Psychological Reports, 125*(5), 2733-2759. https://doi.org/10.1177/00332941211021343

Zakaria, M. Z., Yunus, F., & Mohamed, S. (2021). Drawing activities enhance preschoolers socio emotional development. *Southeast Asia Early Childhood Journal, 10*(1), 18-27. https://doi.org/10.37134/saecj.vol10.1.2.2021

Zhylin, M., Sikorskyi, P., Balla, E., Barchan, V., & Kuzma, O. (2022). The impact of students' social identity on psycho-social adaptation during the period of a difficult educational transition. *Journal of Intellectual Disability – Diagnosis and Treatment, 10*(6), 293–302. https://doi.org/10.6000/2292-2598.2022.10.06.3

Annex 1

Semi-structured interview

- How do you evaluate your level of social-emotional skills before the beginning of the course?

- Which emotional and social skills do you believe you have improved during the course?

- Did you experience difficulties in mastering techniques directed at the development of social-emotional skills? If yes, what were they?

- How did the use of interactive techniques (role plays, group discussions) affect your ability to interact with others?

- Have your approaches to conflict resolution changed since you passed the course? If yes, in which way?

- Have you developed an ability in emotion regulation? Could you provide some examples?

- What learning methods do you believe to be the most effective for the development of empathy and emotion regulation?

- What social-emotional skills, you obtained, do you believe to be helpful in future professional activity?

- In your opinion, did the program contain something that could be improved for the better development of socio-emotional competencies?

- How do you plan to use the obtained social-emotional skills in your profession in future?