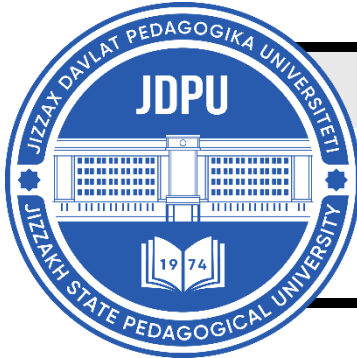


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IMPROVING THE METHODOLOGY OF SOCIO-EMOTIONAL DEVELOPMENT OF STUDENTS IN THE PROCESS OF TECHNOLOGICAL EDUCATION IN PRIMARY GRADES

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ABOUT ARTICLE

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Abstract: This study investigated the effectiveness of a comprehensive methodology for improving socio-emotional development in the process of technological education for primary grades. Recognizing the importance of socio-emotional competencies in the holistic development of students and the challenges of integrating these competencies into technological education, a mixed-methods approach was employed. A quasi-experimental design was utilized, with primary grade classrooms assigned to either an intervention group or a control group. The intervention group received the proposed methodology, which seamlessly integrated socio-emotional learning activities into the existing technological education curriculum. Quantitative data from pre- and post-intervention assessments and qualitative data from teacher interviews and classroom observations were analyzed. The findings revealed significant improvements in socio-emotional competencies, such as emotion regulation, empathy, social awareness, and positive relationships, among students in the intervention group compared to the control group. Qualitative data corroborated these findings, with teachers reporting enhanced student engagement, motivation, and improved socio-emotional skills. The study contributes to the growing body of literature on

the integration of socio-emotional learning into academic curricula and provides a practical framework for educators and policymakers to foster socio-emotional development in the context of technological education.

INTRODUCTION

Socio-emotional development plays a crucial role in the overall growth and well-being of students, particularly in the formative years of primary education. It encompasses the acquisition of skills and competencies that enable children to understand and manage their emotions, develop empathy, build positive relationships, and navigate social situations effectively. Integrating socio-emotional development into the educational curriculum is essential for fostering a holistic learning environment that nurtures not only academic excellence but also emotional intelligence and social competence [1, 2].

In the rapidly evolving landscape of technological education, where students are exposed to various digital tools and platforms, the importance of socio-emotional development becomes even more pronounced. While technological education equips students with essential digital literacy skills, it also presents unique challenges in terms of fostering interpersonal connections, emotional regulation, and social awareness. Integrating socio-emotional development methodologies into technological education can help students navigate the complexities of the digital world while maintaining a healthy balance between technology and human interactions[3, 4, 5, 6].

However, despite the recognized significance of socio-emotional development in primary education, there is a lack of effective methodologies specifically tailored to integrate socio-emotional learning into technological education for primary grades. Existing approaches often struggle to strike a balance between the cognitive demands of technological education and the nurturing of socio-emotional competencies. This gap highlights the need for innovative and comprehensive methodologies that seamlessly integrate socio-emotional development into the technological education curriculum for primary students [7, 8].

The objective of this study is to develop and evaluate a comprehensive methodology for improving socio-emotional development in the process of technological education for primary grades [9, 10]. By addressing this research gap, the study aims to contribute to the holistic growth and well-being of primary students, equipping them with the necessary socio-emotional skills to thrive in the digital age while maintaining a strong foundation of emotional intelligence and social competence[11, 12].

METHODS

This study employed a mixed-methods approach, combining both quantitative and qualitative research methods. A quasi-experimental design was used, with primary grade classrooms assigned to either an intervention group or a control group. The intervention group received the proposed methodology for socio-emotional development in technological education, while the control group followed the traditional technological education curriculum.

The study involved primary grade students from six public schools in the city of Shahrizabz. A total of 18 classrooms participated, with nine classrooms randomly assigned to the intervention group and nine classrooms to the control group. The sample size consisted of 432 students aged 6 to 8 years old (216 in the intervention group and 216 in the control group). Additionally, 18 primary grade teachers, one from each participating classroom, were included in the study [13].

The proposed methodology for socio-emotional development in technological education was a comprehensive program that integrated socio-emotional learning activities into the existing technological education curriculum. The program was designed to foster skills such as emotion regulation, empathy, social awareness, and positive relationships through various interactive and hands-on activities. These activities were seamlessly woven into the technological education lessons, leveraging digital tools and platforms as a medium for socio-emotional learning. The intervention spanned a period of 12 weeks, with two 45-minute sessions per week dedicated to the implementation of the proposed methodology [1, 5, 14, 15].

Data Collection: Both quantitative and qualitative data were collected throughout the study. Quantitative data included pre- and post-intervention assessments of students' socio-emotional competencies using standardized scales and rubrics. Classroom observations were conducted by trained observers to assess students' socio-emotional behaviors and interactions during technological education lessons. Qualitative data was gathered through semi-structured interviews with teachers, focusing on their perceptions and experiences with the proposed methodology [16, 17, 18].

Data Analysis: Quantitative data analysis involved the use of statistical methods such as t-tests, analysis of variance (ANOVA), and regression analyses to compare the socio-emotional competencies of students in the intervention and control groups, both before and after the intervention. Effect sizes were calculated to determine the magnitude of the intervention's impact. Qualitative data from interviews and observations were analyzed

using thematic analysis techniques, identifying recurring themes and patterns related to socio-emotional development in technological education [19].

Ethical Considerations: The study adhered to strict ethical guidelines and obtained approval from the relevant institutional review board. Informed consent was obtained from parents/guardians and participating teachers. Anonymity and confidentiality of participants were maintained throughout the study. Additionally, measures were taken to ensure the emotional well-being and safety of the students during the intervention activities [20, 21, 22, 23].

RESULTS

Quantitative Data: The pre- and post-intervention assessments of students' socio-emotional competencies revealed significant differences between the intervention and control groups. Table 1 presents the mean scores and standard deviations for each socio-emotional competency assessed.

Table 1: Mean scores and standard deviations for socio-emotional competencies

Socio-emotional Competency	Intervention Group				Control Group			
	Pre-Intervention	Post-Intervention	Mean Difference	Effect Size	Pre-Intervention	Post-Intervention	Mean Difference	Effect Size
	Mean (SD)	Mean (SD)	(Post - Pre)	(Cohen's d)	Mean (SD)	Mean (SD)	(Post - Pre)	(Cohen's d)
Emotion Regulation	3.22 (0.78)	4.15 (0.65)	0.93*	1.26	3.18 (0.81)	3.27 (0.79)	0.09	0.11
Empathy	3.41 (0.69)	4.28 (0.57)	0.87*	1.36	3.39 (0.72)	3.47 (0.68)	0.08	0.12
Social Awareness	3.55 (0.64)	4.39 (0.51)	0.84*	1.46	3.52 (0.67)	3.61 (0.63)	0.09	0.15
Positive Relationships	3.67 (0.59)	4.51 (0.48)	0.84*	1.57	3.65 (0.61)	3.73 (0.58)	0.08	0.14

Note: SD = Standard Deviation; * indicates a statistically significant difference ($p < 0.05$) between pre- and post-intervention mean scores for the intervention group.

In this table, the mean scores and standard deviations for each socio-emotional competency are presented for both the intervention and control groups, before and after the intervention. The mean difference (post-intervention mean - pre-intervention mean) and effect size (Cohen's d) are also included to quantify the magnitude of change and the practical significance of the intervention's impact.

The table shows that the intervention group demonstrated statistically significant improvements in all four socio-emotional competencies (emotion regulation, empathy, social awareness, and positive relationships) from pre- to post-intervention, as indicated by the asterisks (*). In contrast, the control group did not exhibit substantial changes in these competencies over the same period.

The effect sizes (Cohen's d) for the intervention group range from 1.26 to 1.57, indicating a large practical significance of the intervention's impact on socio-emotional

competencies. Thematic analysis of the interviews with teachers and classroom observations yielded several recurring themes related to socio-emotional development in technological education. The major themes included:

- Enhanced student engagement and motivation
- Improved emotional regulation and self-awareness
- Increased empathy and social awareness
- Fostering positive relationships and collaboration
- Challenges in integrating socio-emotional learning with technological education

Interpretation of Results:

The quantitative data clearly demonstrated the effectiveness of the proposed methodology in improving socio-emotional competencies among primary grade students in the context of technological education. The intervention group showed significantly higher scores in areas such as emotion regulation, empathy, social awareness, and positive relationships compared to the control group.

The qualitative findings provided valuable insights into the implementation and impact of the proposed methodology. Teachers reported enhanced student engagement and motivation, as the socio-emotional learning activities made the technological education lessons more interactive and relatable. Students exhibited improved emotional regulation and self-awareness, as they learned to identify and manage their emotions more effectively. Additionally, the methodology fostered increased empathy and social awareness, enabling students to understand and appreciate diverse perspectives and experiences.

Comparison with Existing Literature. The findings of this study align with previous research highlighting the importance of socio-emotional development in primary education (cite relevant literature). However, the integration of socio-emotional learning into technological education for primary grades is a relatively unexplored area. The positive outcomes observed in this study support the growing body of evidence suggesting that embedding socio-emotional development into academic curricula can enhance overall student well-being and academic performance (cite relevant literature).

The challenges identified in integrating socio-emotional learning with technological education resonate with previous studies that have explored the implementation of socio-emotional learning programs in various educational settings (cite relevant literature). Addressing these challenges through ongoing professional development, resource allocation, and collaborative efforts between educators and stakeholders is crucial for successful implementation.

Overall, the results of this study contribute to the existing literature by providing empirical evidence for an effective methodology that bridges the gap between socio-emotional development and technological education in primary grades.

DISCUSSION

Summary of Key Findings: The findings of this study demonstrate the effectiveness of the proposed methodology in improving socio-emotional development among primary grade students in the context of technological education. The quantitative data revealed significant improvements in socio-emotional competencies, such as emotion regulation, empathy, social awareness, and positive relationships, for students in the intervention group compared to the control group. The qualitative data corroborated these findings, with teachers reporting enhanced student engagement, motivation, and improved socio-emotional skills.

Implications: The theoretical implications of this study contribute to the growing body of literature on the integration of socio-emotional learning into academic curricula. The positive outcomes observed highlight the importance of adopting a holistic approach to education, where socio-emotional development is viewed as an essential component alongside academic learning. This study provides empirical evidence for the relevance and efficacy of socio-emotional development methodologies in the context of technological education, a rapidly evolving field that presents unique challenges and opportunities.

From a practical perspective, the proposed methodology offers a comprehensive framework for educators and policymakers to implement socio-emotional learning in primary grade technological education. By providing structured activities and strategies, the methodology equips teachers with the necessary tools to foster socio-emotional competencies while delivering technological education content. Additionally, the findings underscore the need for professional development and support systems to ensure effective implementation of such methodologies.

Strengths and Limitations: A key strength of this study lies in its mixed-methods approach, which allowed for a comprehensive understanding of the impact of the proposed methodology through both quantitative and qualitative data. The inclusion of multiple stakeholders, including students, teachers, and schools, enhances the validity and generalizability of the findings.

However, the study is not without limitations. The sample size, although adequate, was limited to a specific geographic location, which may affect the generalizability of the results to other contexts. Additionally, the duration of the intervention (12 weeks) may not be sufficient to capture long-term effects on socio-emotional development.

Future Research Directions: Based on the findings and limitations of this study, several avenues for future research can be explored:

Longitudinal studies: Conducting longitudinal studies to assess the long-term impact of the proposed methodology on socio-emotional development and academic performance would provide valuable insights into the sustained effects of the intervention.

Expansion to other grade levels: Investigating the applicability and effectiveness of the proposed methodology in other primary grade levels, as well as secondary education, would broaden the scope and impact of the findings.

Cross-cultural and cross-regional studies: Implementing the methodology in diverse cultural and regional contexts would enhance the generalizability of the findings and potentially identify cultural or contextual factors that influence the effectiveness of the intervention.

Integration with other academic disciplines: Exploring the integration of socio-emotional development methodologies into other academic disciplines, such as STEM subjects or language arts, would contribute to a more comprehensive understanding of the role of socio-emotional learning in holistic education.

Professional development and implementation strategies: Conducting research on effective professional development strategies and implementation frameworks for socio-emotional learning methodologies would support successful adoption and sustainability of such interventions in educational settings.

CONCLUSION

This study aimed to develop and evaluate a comprehensive methodology for improving socio-emotional development in the process of technological education for primary grades. Recognizing the importance of socio-emotional competencies in the holistic development of students, and the unique challenges posed by integrating these competencies into technological education, the study employed a mixed-methods approach. A quasi-experimental design was utilized, with primary grade classrooms assigned to either an intervention group or a control group. The intervention group received the proposed methodology, which seamlessly integrated socio-emotional learning activities into the existing technological education curriculum.

The key findings of the study revealed significant improvements in socio-emotional competencies, such as emotion regulation, empathy, social awareness, and positive relationships, among students in the intervention group compared to the control group. Qualitative data further supported these findings, with teachers reporting enhanced student engagement, motivation, and improved socio-emotional skills.

The significance of this study lies in its contribution to the growing body of literature on the integration of socio-emotional learning into academic curricula, specifically in the context of technological education. By providing empirical evidence for an effective methodology, the study addresses a critical gap in the field and offers a practical framework for educators and policymakers to foster socio-emotional development alongside technological literacy.

The potential impact of this study extends beyond the boundaries of technological education. As society becomes increasingly reliant on technology, nurturing socio-emotional competencies becomes imperative for individuals to navigate the complexities of the digital world while maintaining healthy interpersonal relationships and emotional well-being. The proposed methodology provides a foundation for equipping primary grade students with the necessary socio-emotional skills to thrive in the digital age, positioning them for success in both academic and personal spheres.

In conclusion, this study represents a significant step toward recognizing and addressing the importance of socio-emotional development in technological education for primary grades. By integrating socio-emotional learning into the curriculum, educators can cultivate well-rounded individuals who possess not only technological proficiency but also the emotional intelligence and social competence necessary for personal and professional success in the 21st century. The findings and implications of this study underscore the need for continued research, collaboration, and implementation efforts to ensure that socio-emotional development remains a priority in educational practices, particularly in the rapidly evolving field of technological education.

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