Original Research

Investigation of the Effectiveness of Virtual Training of Life Skills via Puppetry on Enhancing Social Competence and Managing Behavioral Challenges in Children

Samira Masoumi Zavariani[1]*, Maryam Taraj[2], Fatemeh Sharif Mousavi[3]

1. Islamic Azad University, Qom branch, Qom, Iran. Orcid: 0009-0007-7607-1541

2. Islamic Azad University, Qom branch, Qom, Iran. Orcid: 0009-0000-2635-2889

3. Kharazmi University, Tehran, Iran. Orcid: 0000-6724-7687-331x

Corresponding Author: Samira Masoumi Zavariani. Islamic Azad University, Qom branch, Qom, Iran. Email: massumy.s@gmail.com

Abstract

Background: Many families often encounter financial constraints and lack suitable resources to address the needs of children facing behavioral issues and deficient social skills. This research aimed to assess the efficacy of virtual life skills training delivered through puppet shows in augmenting social aptitude and mitigating behavioral problems in such children.

Method: The training program consisted of 30 sessions, employing indirect performance techniques and puppet shows. Participants were chosen from grades one through four, with five non-randomly selected individuals per grade, resulting in a total of 20 participants, evenly distributed into control and experimental groups. The sessions took place in a non-government school called Chakad. To determine statistical significance, data from this study underwent multivariate covariance analysis using SPSS software.

Results: The findings revealed that the experimental group demonstrated an increase in post-test scores compared to pre-test scores. The data suggests that virtual life skills training via puppet shows was effective in ameliorating children's social issues in the post-test ($F=84.308$, $p<0.005$). Additionally, the virtual training significantly reduced behavioral problems in children in the post-test ($F=42.480$, $p<0.005$).

Conclusion: This research, by validating its hypotheses, affirms that virtual education presented through puppet shows has a positive and substantial impact on enhancing children's social competencies and mitigating their behavioral challenges.

Keywords: Virtual Training, Life Skills, Social Skills, Behavioral problems, Children

Submitted: 7 Oct 2023, Revised: 5 Nov 2023, Accepted: 14 Nov 2023

[Downloaded from intjmi.com on 2026-11-16]

Introduction

In childhood, emotional and behavioral problems can be observed in approximately 10-20% of children and adolescents worldwide. Mental health problems not only reduce the quality of life related to children's health but also affect their adult life (Liu et.al. 2021). Child behavioral problems are conceptualized as externalized (including aggression and hyperactivity) (Stone et al., 2015) and/or internalized (anxiety and depression, fear, social withdrawal, and physical complaints) (Göbel et al., 2016). Longitudinal studies show that early behavior problems are related to the occurrence of later problems and show a high degree of continuity of behavior problems from early childhood to adolescence (Flouri et al., 2019). Such children are prone to behavioral problems as well as negative consequences, such as dropping out of school, delinquency, and poor academic achievement (Darney et al., 2013). Likewise, Social-emotional competence (SEC), which refers to the effective management of intrapersonal and interpersonal interactions, introduces one of the main components of appropriate adaptation to the environment (Collie, 2020). Studies on the frequency of intimate partner aggression (IPA) and parent-child aggression (PCA) in childhood and preschool and their relationship with children's social-emotional competence through multilevel models show that children's exposure to both IPA and PCA has reduced their social-emotional competence. These findings reinforce prevention scholars' emphasis on conflict resolution skills as an essential component of parent education programs (Lee et.al. 2022). Since children and youth are faced with many academic, parental, peer, social-emotional, and similar situations, life skills or social-emotional skills help students to face these demands independently Life skills include a range of emotional, psychosocial, and cognitive abilities that may help build supportive relationships, increase self-regulation, and make informed decisions. Life skills include communication and interpersonal skills, decision-making and critical thinking skills, and self-management and coping skills. Life skills training helps to ensure and promote long-term health, prevent chronic diseases and eliminate adverse social consequences (Shinde et.al., 2022). In general, social and emotional learning (SEL) refers to the process by which individuals learn and apply a set of social, emotional, and non-academic skills, attitudes, behaviors, and values that help guide their thoughts, feelings, and actions. These processes include ways that enable them to succeed in school, work, and life (Jones et al., 2017). SEL is also a combination of cognitive, social, and emotional skills and competencies, including cognitive skills and competencies. Which enables children to manage their thoughts, feelings, and behavior in order to achieve a goal (Aspen Commission, 2019). These emotional skills enable children to relate to the feelings of others through empathy, and by building relationships resolve conflicts healthily and can work and play well with others (Jones and Bouffard, 2012). In the 1990s, the World Health Organization (1999) recognized life skills as necessary for individual and social development and defined them as "psychosocial skills needed to effectively cope with the demands and challenges of everyday life". They categorized different skills into cognitive, personal, emotional, social, and interpersonal abilities. Later, UNICEF (2012) used it in the form of life skills programs, including 10 cognitive, personal, and interpersonal skills (social skills) that young people should learn. These categories include decision-making, problem-solving, creative thinking, critical thinking, effective communication, interpersonal skills, self-awareness, empathy, and coping with emotions (Yano et.al. 2021). Interpersonal skills mainly refer to cooperation, negotiation, and communication, while intrapersonal or social-emotional skills include self-confidence, motivation, coping with emotions/stress, and persistence. Cognitive skills also include decision-making and problem-solving as well as critical

[Downloaded from intjmi.com on 2026-11-16]

and creative thinking (Gates et al., 2016). On the other hand, new technologies, (including ICT) have fundamentally changed our societies. Therefore, people with occupations at risk of obsolescence need to increasingly pursue their progress through new skills development initiatives (DeFreitas, 2022). Virtual environments have been proposed as a technique to bring the real world into the classroom (Newbutt et al., 2016). Through immersive and interactive virtual environments, real-world scenarios can be created to provide safe, repeatable, and targeted training with educational simulations that enable a real-life practice to focus on improving social and practical skills needed in the real world. (Dempsey and Ford, 2009). There is encouraging evidence that virtual environments can even be used to improve life skills and social skills in people with neurodevelopmental disorders (Ramdos et al., 2012). The main goal of this research was to study the effectiveness of virtual training of life skills through puppet shows on children's social skills and behavioral problems.

Method

This research was conducted to assess the efficacy of virtual life skills training presented via puppet shows in mitigating social and behavioral challenges in children. The training consisted of 30 sessions, utilizing indirect performance and featuring puppet character performances. Participants were selected from grades one to four, with five individuals chosen per grade (totaling 20 participants). Selection was non-random and based on availability, and participants were evenly divided into two groups: control and test. The sessions were conducted at a non-governmental school named Chakad.

All the examined variables were subjected to appropriate descriptive and inferential statistical analyses, including measures such as mean, standard deviation, and pre-test and post-test evaluations, with data from the control group analyzed through covariance analysis using SPSS 26 software.

Results

In accordance with the principles of descriptive statistics, the research data is characterized using measures of central tendency and variability. Table 1 presents the descriptive statistics for the research variables in both the pre-test and post-test phases within the experimental and control groups.

Evidently, the scores of the experimental group exhibited an increase in the post-test as compared to the pre-test. To assess the impact of virtual life skills training through puppet shows on mitigating children's social and behavioral problems, multivariate covariance analysis was employed.

The results reveal that the mean and standard deviation for the social skills variable in the pre-test were 35.25 ± 6.56 for the experimental group and 34.70 ± 5.83 for the control group. In the post-test, the social skills variable exhibited a mean and standard deviation of 63.85 ± 5.87 for the experimental group and 36.82 ± 4.62 for the control group.

The findings regarding the mean and standard deviation of the behavioral problems variable indicate that in the pre-test, they were 17.70 ± 3.59 for the experimental group and 18.00 ± 2.67 for the control group. In the post-test, the mean and standard deviation for behavioral problems were 7.85 ± 1.89 for the experimental group and 16.65 ± 2.97 for the control group.

Before applying multivariate covariance analysis, it was imperative to verify the assumptions of the analysis of covariance. One of these assumptions is the homogeneity of regression slopes in the test and control groups, both in the pre-test and post-test phases (as presented in Table 2). According to Table 2, the F-test related to the homogeneity of regression slopes in the pre-test and post-test phases for the social skills and behavioral problems variables in both the experimental and control groups did not yield statistical significance ($P>0.05$). Consequently, the regression slopes in the pre-test and post-test phases were consistent across both groups, and the assumption regarding regression slopes was met.

[Downloaded from intjmi.com on 2026-11-16]

Furthermore, to evaluate the homogeneity of post-test variances for the variables in the two groups, Levin's test was conducted in the post-test phase (as indicated in Table 3). According to Table 3, Levin's test for any of the examined variables did not reach statistical significance (P>0.05). Thus, the assumption of homogeneity of variances was upheld.

Another essential assumption concerns the linear relationships between variables. To determine the significance of the Multivariate Analysis of Covariance (Mancova), the Sig value was assessed. Since the Sig value was recorded as 0.000, which is less than the alpha value (P>0.05), the result is considered significant (as shown in Table 4).

In light of these results, the significance level of the four Multivariate Analysis of Variance tests was notable (P>0.05). Therefore, the covariance analysis model is significant, indicating a meaningful difference in at least one of the variables between the two experimental and control groups.

Conforming to the assumptions of multivariate covariance analysis, the utilization of this test was justified. To pinpoint which variables displayed a significant difference, the Multivariate Analysis of Covariance (Mancova) test was applied (as depicted in Table 5).

With reference to the data in Table 5, it is evident that the virtual training of life skills through puppet shows was effective in mitigating children's social problems in the post-test (F=84.308; sig<0.005). Additionally, this training method proved effective in addressing children's behavioral problems in the post-test (F=42.480; sig<0.005).

Discussion

The COVID-19 pandemic, along with the associated public health measures, has disrupted lives worldwide, resulting in both direct and indirect psychological and social impacts on the mental health of young children and adolescents, affecting them in the short and long term. A review of 5828 articles concerning the pandemic's impact on the mental health of children and adolescents revealed that it has led to stress, anxiety, feelings of helplessness, and social and risky behavioral issues among them. Effective interventions, such as arts-based programs, support services, and mental health and psychosocial services directed by physicians, have been successful in mitigating mental health problems in children and adolescents. Moreover, it is crucial to explore effective approaches to develop and offer age-appropriate services that can reduce the effects of the pandemic and enhance the long-term mental health capacities of children and adolescents (Meherali et al., 2021).

In a similar vein, fostering and advancing social-emotional skills during childhood and adolescence can have a positive impact on their well-being in later life and lead to favorable life outcomes. However, assessing these skills presents specific conceptual and methodological challenges (Abrahams et al., 2019).

The results of a meta-analysis encompassing 117 studies on the impact of family-school interventions on children's social behavioral competence and mental health highlight that elements significantly associated with positive outcomes in children's social relationships include interpersonal processes, relational aspects (such as communication, collaboration, and parent-teacher relationships), and structural elements like home-based participation and behavioral supports. These findings underscore the benefits of family-school collaboration and have implications for adapting such interventions to the characteristics of families and specific communities (Sheridan et al., 2019).

Research outcomes indicate that a variety of educational game tools possess unique and engaging features for childhood education. Educational media integrated with information and communication technology have been developed to be widely accessible, including game-based learning through platforms like Zoom Cloud, which can positively impact the emotional development of children (Bali et al., 2021).

[Downloaded from intjmi.com on 2026-11-16]

While curriculum-based social and emotional learning (SEL) programs have been extensively studied in terms of their impact on child outcomes, the approaches educators use to enhance children's social and emotional functioning through everyday practices are less defined. These strategies can be categorized into four general groups: establishing a nurturing and responsive teacher-child relationship, supporting SEL through daily interactions, utilizing the physical environment to promote SEL, and collaborating with caregivers (Blewitt et al., 2021).

Based on the findings presented in Table 5, the effect size indicates that 70% of the variations in the dependent variable result from the influence of the independent variable, which is the virtual training of life skills through puppet shows. Consequently, the hypothesis that "virtual life skills training has a positive and significant effect on children's social skills during the COVID-19 pandemic" is confirmed. This finding aligns with prior evidence.

Previous research has demonstrated that digital applications and emerging health services, including telehealth, social media, mobile technologies, and interactive online distance learning, can support mental and behavioral health for pediatric populations. Hence, digital approaches, health technologies, and informatics should be designed and implemented to facilitate public health surveillance and critical responses to the growth and development of children (Ye, 2020). There are also promising findings suggesting that interactive virtual reality enhances the effectiveness of psychotherapy for children with aggressive behavior problems (Alsem et al., 2021).

Significant effort has been dedicated to using technology to enhance access to behavioral health services, which has seen exponential growth since the onset of the COVID-19 pandemic, largely driven by the effectiveness of telehealth services (Ros-DeMarize et al., 2021).

Similarly, in the current study, the effect size indicates that 54% of the variations in the dependent variable are attributed to the independent variable's impact, which is virtual training of life skills through puppet shows. Hence, the second sub-hypothesis is also validated, stating that "virtual teaching of life skills through puppet shows has a positive and significant effect on children's behavioral problems during the COVID-19 pandemic." This finding aligns with other existing research data.

As a result, the central hypothesis of this study, which posits that "virtual education through puppet shows enhances social skills and reduces behavioral problems in children," is also confirmed. Nevertheless, since this field of research is relatively recent, it is suggested that future research focus on establishing a standardized methodology through larger randomized controlled trials.

Conclusion:

This research, by validating its hypotheses, affirms that virtual education presented through puppet shows has a positive and substantial impact on enhancing children's social competencies and mitigating their behavioral challenges.

Acknowledgments

This project was approved by the student research committee of Chalous Islamic Azad University and a code of ethics was obtained from the bioethics committee of the university. In conclusion, the researchers consider it necessary to express their gratitude to all the parents who helped us in this research.

Funding

None

Conflicts of interests

No conflict of interest was observed during this study.

Ethical considerations:

None

Author contribution:

All authors met the four criteria for authorship contribution based on recommendations of the International Committee of Medical Journal Editors

[Downloaded from intjmi.com on 2026-11-16]

References:

1- Abrahams, L., Pancorbo, G., Primi, R., Santos, D., Kyllonen, P., John, O. P., & De Fruyt, F. (2019). Social-emotional skill assessment in children and adolescents: Advances and challenges in personality, clinical, and educational contexts. Psychological Assessment, 31(4), 460.

2- Alsem, S. C., van Dijk, A., Verhulp, E. E., & De Castro, B. O. (2021). Using virtual reality to treat aggressive behavior problems in children: A feasibility study. Clinical child psychology and psychiatry, 26(4), 1062-1075.

3- Aspen Commission. (2019). From a Nation at Risk to a Nation at Hope: Recommendations from the National Commission on Social, Emotional, and Academic Development. The Aspen Institute. http://nationathope.org/wp-content/uploads/2018_aspen_final-report_full_web- version.pdf

4- Bali, M. M. E. I., Fathony, A., Maghfirah, E., & Farida, L. A. (2021, May). Utilization of Zoom Cloud in M3D (Maze 3D) Game-Based Learning to Develop Early Childhood Social-Emotional Skills. In IOP Conference Series: Materials Science and Engineering (Vol. 1125, No. 1, p. 012061). IOP Publishing.

5- Blewitt, C., O'connor, A., Morris, H., Nolan, A., Mousa, A., Green, R., ... & Skouteris, H. (2021). "It's Embedded in What We Do for Every Child": A Qualitative Exploration of Early Childhood Educators' Perspectives on Supporting Children's Social and Emotional Learning. International Journal of Environmental Research and Public Health, 18(4), 1530.

6- Collie, R. J. (2020). The development of social and emotional competence at school: An integrated model. International Journal of Behavioral Development, 44(1), 76-87.

7- Darney D, Reinke WM, Herman KC, Stormont M, Ialongo NS. Children with co-occurring academic and behavior problems in first grade: distal outcomes in twelfth grade. J Sch Psychol. 2013 Feb;51(1):117-28. doi: 10.1016/j.jsp.2012.09.005. Epub 2012 Oct 25. PMID: 23375176; PMCID: PMC3564015.

8- De Freitas, P. (2022, March). Building ICT skills for Employability: Piloting a virtual training model for the Caribbean School of Data. In 2022 5th International Conference on Information and Computer Technologies (ICICT) (pp. 219-223). IEEE.

9- Dempsey, I., and Ford, J. (2009). Employment for people with intellectual disability in Australia and the United Kingdom. J. Disabil. Policy Stud. 19, 233–243.

10- Flouri E., Z. Sarmadi, M. Francesconi و Paternal psychological distress and child problem behavior from early childhood to middle adolescence, Journal of the American Academy of Child and Adolescent Psychiatry, 58 (4) (2019), pp. 453-458, 10.1016/j.jaac.2018.06.041.

11- Gates, S., Lippman, L., Shadowen, N., Burke, H., Diener, O., & Malkin, M. (2016). Youthpower action: Key soft skills for cross-sectoral youth outcomes. USAID. https://www.fhi360.org/sites/default/files/media/documents/resource-soft-skills-report.pdf

12- Göbel A., A. Henning, C. Möller, G. Aschersleben, The relationship between emotion comprehension and internalizing and externalizing behavior in 7- to 10-year-old children, Frontiers in Psychology, 7 (Dec.) (2016), pp. 1-11, 10.3389/fpsyg.2016.01917.

13- Jones, S. M., & Kahn, J. (2017). The evidence base for how we learn: Supporting students' social, emotional, and academic development. Aspen Institute. https://www.aspeninstitute.org/publications/evidence-base-learn/

14- Jones, S. M., & Bouffard, S. M. (2012).

[Downloaded from intjmi.com on 2026-11-16]

Social and emotional learning in schools: From programs to strategies and commentaries. Social Policy Report, 26(4), 1–33.

15- Lee, J. K., Marshall, A. D., & Feinberg, M. E. (2022). Parent-to-child aggression, intimate partner aggression, conflict resolution, and children's social–emotional competence in early childhood. Family process, 61(2), 823-840.

16- Liu, W., Wu, X., Huang, K., Yan, S., Ma, L., Cao, H., ... & Tao, F. (2021). Early childhood screen time as a predictor of emotional and behavioral problems in children at 4 years: a birth cohort study in China. Environmental health and preventive medicine, 26(1), 1-9.

17- Meherali, S., Punjani, N., Louie-Poon, S., Abdul Rahim, K., Das, J. K., Salam, R. A., & Lassi, Z. S. (2021). Mental health of children and adolescents amidst COVID-19 and past pandemics: a rapid systematic review. International journal of environmental research and public health, 18(7), 3432.

18- Newbutt, N., Sung, C., Kuo, H.-J., Leahy, M. J., Lin, C.-C., and Tong, B. (2016b). Brief report: a pilot study of the use of a virtual reality headset in autism populations. J. Autism Dev. Disord. 46, 3166–3176.

19- Ramdoss, S., Lang, R., Fragale, C., Britt, C., O'Reilly, M., Sigafoos, J., et al. (2012). Use of computer-based interventions to promote daily living skills in individuals with intellectual disabilities: a systematic review. J. Dev. Phys. Disabil. 24, 197–215.

20- Ros-DeMarize, R., Chung, P., & Stewart, R. (2021). Pediatric behavioral telehealth in the age of COVID-19: Brief evidence review and practice considerations. Current Problems in Pediatric and Adolescent Health Care, 51(1), 100949.

21- Sheridan, S. M., Smith, T. E., Moorman Kim, E., Beretvas, S. N., & Park, S. (2019). A meta-analysis of family-school interventions and children's social-emotional functioning: Moderators and components of efficacy. Review of educational Research, 89(2), 296-332.

22- Shinde, S., Pereira, B., & Khandeparkar, P. (2022). Acceptability and feasibility of the Heartfulness Way: A social-emotional learning program for school-going adolescents in India. Indian Journal of Psychiatry, 64(5), 489-498.

23- UNICEF. (2012). Global evaluation of life skills education programs. United Nations Children's Fund.

24- World Health Organization. (1999). Partners in life skills education: Conclusions from a United Nations inter-agency meeting. WHO. https://www.who.int/mental_health/media/en/30.pdf

25- Yano, K., Kase, T., & Oishi, K. (2021). Sensory processing sensitivity moderates the relationships between life skills and depressive tendencies in university students 1. Japanese Psychological Research, 63(3), 152-163.

26- Ye, J. (2020). Pediatric mental and behavioral health in the period of quarantine and social distancing with COVID-19. JMIR pediatrics and parenting, 3(2), e19867.

[Downloaded from intjmi.com on 2026-11-16]

Table & Figure:

Table 1. Descriptive statistics of research variables

Groups	Frequency	Variable	Pretest		Post-test	
			Average	S.D	Average	S.D
Test	20	Social Skills	35.25	6.65	63.85	5.87
		Behavioral Disorders	17.70	3.59	7.85	1.89
Control	20	Social Skills	34.70	5.83	36.82	4.62
		Behavioral Disorders	18.00	2.67	16.65	2.97

Table 2. Checking the assumption of homogeneity of the regression slope

Pre-test group interaction	F statistic	The significance level
Social skills	1.103	0.301
Behavioral problems	0.928	0.342

Table 3. Levin's test results

Variables	F statistic	df 1	df 2	The significance level
Social skills	0.868	1	38	0.028
Behavioral problems	2.074	1	38	0.050

[Downloaded from intjmi.com on 2026-11-16]

Table 4. Summary of the results of multivariate covariance analysis (Mancova)

Test	Amount	F statistic	Degrees of Freedom	Error df	Significance level	Partial eta squared
Pillai effect	0.865	52.804	4	22	0.000	0.865
Wilks Lambda	0.135	52.804	4	22	0.000	0.865
Hotelling Trace	6.400	52.804	4	22	0.000	0.865
Roy's Largest Root test	6.400	52.804	4	22	0.000	0.865

Table 5. Results of Mancova analysis

Dependent variable	Source	Sum of squares	Mean square	F statistic	Significance level	ETA correlation
Social skills	Group effect	2896.59	2896.59	84.308	0.00	0.70
	Error	1236.86	34.35			
Behavioral problems	Group effect	230.411	230.411	42.480	0.00	0.54
	Error	195.26	5.424			

[Downloaded from intjmi.com on 2026-11-16]