

Developing Communication Skills and Social Adjustment in Deaf Students: The Effect of Role-Playing Activities

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Abstract

Background: Deafness can impact a student's life in various ways, including social adjustment, and negatively affect their flexibility. This study aimed to determine the effectiveness of teaching role-playing methods on positive and negative affect and social adjustment in deaf students.

Methods: The present study employed a quasi-experimental pretest-posttest control group design. The target population comprised all deaf students between the ages of 14 and 18 enrolled in exceptional high schools in Ahvaz, Iran, during the 2023 academic year. Thirty participants were recruited through a convenience sampling method, and assigned to either the experimental or control group using random allocation (n=15 per group). The students completed the Scale of Positive and Negative Experience (SPANE) and the Bell Adjustment Inventory (BAI) at the pretest and posttest (two and a half months later). The experimental group received role-playing training in ten 90-minute sessions. The data were analyzed using the ANCOVA test.

Results: The role-playing training group showed a statistically significant increase in positive affect from pretest (11.27 ± 1.84) to posttest (18.60 ± 2.11) ($P=0.001$). In contrast, the control group did not show a significant change in positive affect scores (10.32 ± 1.06 at pretest; 11.14 ± 1.66 at posttest). The role-playing training group exhibited a significant decrease in negative affect scores from pretest (22.27 ± 3.08) to posttest (15.60 ± 2.96) ($P=0.001$). The control group did not show a statistically significant change in negative affect (20.32 ± 3.12 at pretest; 21.71 ± 2.95 at posttest). The role-playing training group showed a statistically significant increase in social adjustment from pretest (11.27 ± 1.84) to posttest (18.60 ± 2.11) ($P=0.001$). The role-playing training group showed a statistically significant increase in social adjustment from pretest (40.87 ± 5.21 at pretest; 53.15 ± 7.00 at posttest; $P=0.001$). There was a statistically significant difference between the groups in the change of negative affect, positive affect, and social adjustment scores ($P=0.001$).

Conclusion: Role-playing training can be an effective intervention for improving the emotional well-being and social adjustment of deaf students. The observed reduction in negative affect and improvement in positive affect suggest that interventions focusing on role-playing methods can effectively address emotional challenges faced by deaf students.

Keywords: Role-playing, Affect, Social adjustment, Deafness, Students

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1. Introduction

Approximately 1 in 1000 children born worldwide have severe to profound sensorineural hearing loss (1). Damage to the auditory system can lead to various consequences, including language and speech problems, cognitive, psychological, social, occupational, academic, and learning difficulties, depending on the time, severity, and location of the injury (2, 3). Since human communication plays a vital role in the social, emotional, and personal development of an individual, it seems that deaf people face more problems and challenges in life because human senses are the gateways for receiving information, exchanging and communicating with the

environment (4, 5). Therefore, the impact of their absence on the individual's socio-psychological state is undeniable (6).

Difficulties in establishing effective communication may lead to academic underachievement, lack of job opportunities, job retention challenges, financial insecurity, and personal and social dependence for individuals who are deaf or hard of hearing (7). Given that the level of distress in students with hearing impairments is higher as compared with their peers, it results in uncontrollable distress and anxiety disorders in children. Also, one of the significant factors influencing anxiety disorders is an individual's positive and negative emotional experiences (8);

accordingly, the way emotional communication is established as well as the perception and interpretation of others' emotions play a crucial role in growth, personality organization, moral development, social relationships, identity formation, and self-concept. This can create a basis for anxiety disorders and other negative emotions in deaf children (9, 10).

Watson and Tellegen (11), in 1985, conceptualized emotions as two fundamental affective dimensions including positive and negative affect. Positive affect is a state of high energy, intense focus, and engagement in enjoyable activities. It encompasses a broad range of positive mood states, including happiness, a sense of power, excitement, desire, interest, and self-confidence. Negative affect, on the other hand, refers to the extent to which a deaf child experiences unpleasant feelings and dissatisfaction. It is a general dimension of internal distress and lack of engagement in enjoyable activities, which can lead to avoidant mood states such as anger, sadness, hatred, humiliation, guilt, fear, and resentment due to hearing loss (12).

On the other hand, one of the observable weaknesses in deaf individuals is their lack of social adjustment (13). Social adjustment refers to an individual's adjustment to their social environment, which can be achieved through either self-modification or environmental modification (14, 15). Social adjustment is a critical component of personal growth, and its deficiency can have a significant negative impact on a child in the long run (16). Since social adjustment is learned through interaction with others, and requires adequate sensory abilities including hearing, individuals with hearing loss are deprived of such experiences due to their auditory impairment. This can negatively affect the communicative and social interaction skills of deaf individuals (17).

Deaf students face unique challenges in developing communication skills and social adjustment. Role-playing activities offer a valuable method for educators to address these challenges. By placing students in simulated social situations, role-playing allows them to practice communication strategies in a safe and engaging environment (18). This can involve acting out everyday scenarios or even hypothetical situations to help students develop the skills they need to navigate various social interactions. The benefits of role-playing extend beyond communication skills. Studies

suggested that role-playing can also promote emotional well-being in children by allowing them to express and release emotions freely without a fear of rejection (19, 20). Furthermore, research by Alaedini and colleagues (21) indicated that role-playing training can foster creativity, problem-solving abilities, and critical thinking skills.

Given the extensive individual, collective, and social consequences of deafness, as well as the limitations caused by disability in deaf students and its physical, psychological, and social consequences, it is necessary to implement special education programs aligned with the specific needs of these children. Such education and services are of particular importance in early childhood, as children are at a critical stage of learning. Thus, the effects of physical and neurological problems are more pronounced in deaf children, and any difficulty in adapting to others can lead to serious problems in the future. In this regard, no research has yet been conducted to examine the effect of role-playing training on the psychological problems of deaf children. Therefore, the present study aimed to investigate the effectiveness of teaching role-playing methods on positive and negative affect and social adjustment in deaf students.

2. Methods

The present study employed a quasi-experimental pretest-posttest control group design. The statistical population of this study included all deaf students aged 14 to 18 years old from the first and second exceptional high schools in Ahvaz, Iran in 2023. Thirty deaf students were recruited through a convenience sampling approach. Participants were then randomly assigned to one of two conditions: an experimental group and a control group ($n=15$ per group). A power analysis software program, G*Power, was employed to determine an appropriate sample size (effect size=1.24, statistical power=0.95, and $\alpha=0.05$) (22). As a result, a sample size of 15 participants per group was determined. The role-playing training group exhibited a mean social adjustment score of 53.15 ($SD=7.00$), while the control group had a mean score of 43.20 ($SD=5.01$). Random assignment to the experimental or control group was achieved using a random number table. This technique ensures an unbiased allocation process by assigning participants a random number and then using a predetermined table of random numbers to

correspond each number to a group condition (e.g., experimental or control). The inclusion criteria were: deaf students between 14 and 18 years old who provided a written informed consent and expressed willingness to participate in the study. The exclusion criteria were: students with any additional disabilities beyond deafness that could significantly impact their participation in the study or the generalizability of the findings (e.g., cognitive impairments, severe visual impairments), students with a prior history of participating in similar studies involving role-playing interventions, and being absent in more than two sessions. Following a written informed consent and pretest assessment, the intervention was delivered to the experimental group only. The control group did not receive any interventions. Following the completion of the intervention, a post-test was administered to both groups. It is worth noting that after the research was completed, the educational method was also delivered to the control group in a condensed form.

2.1. Instruments

2.1.1. Demographic questionnaires: The demographic information of the study participants (including age, gender, and grade level) was collected using a researcher-made questionnaire.

2.1.2. Positive and Negative Experience Scale (SPANES): This scale was developed by Diener and co-workers (23) and consists of 12 items, with 6 items measuring positive affect and 6 items measuring negative affect. Participants are asked to respond to the items based on their emotional experiences using a 5-point Likert scale (1=never, 2=rarely, 3=sometimes, 4=often, and 5=always). The score range for positive and negative affect is 6 to 30. Higher scores (closer to 30) indicate that the individual experiences more positive or negative affect. Li and colleagues (24) reported internal consistency estimates (Cronbach's alpha) of 0.92 and 0.89 for positive and negative affect, respectively. Hasani and Nadi (25) reported Cronbach's alpha values of 0.87 and 0.81 for positive and negative affect, respectively. Moreover, Hasani and Nadi (25) established evidence for the scale's content validity using a Content Validity Index (CVI) of 0.91 and a Content Validity Ratio (CVR) of 0.90. In this study, Cronbach's alpha was used to determine the reliability of the instrument, which was 0.82 and 0.83 for positive and negative affect, respectively.

2.1.3. The Bell Adjustment Inventory (BAI):

This scale was developed by Bell in 1961 and consists of 32 items. The items are scored on a Likert scale, with 0=Yes, 2=I don't know, and 3=No. If the total score is between 0 and 32, it indicates poor social adjustment. If the total score is between 32 and 64, it indicates moderate social adjustment. Scores above 64 indicate a very good level of social adjustment (26). Ebrahimi and colleagues (27) provided evidence supporting the content validity of the BAI through a CVI of 0.88 and a CVR of 0.85. The reliability of this scale was reported as 0.90 by Ebrahimi and colleagues (27) using Cronbach's alpha. In this study, Cronbach's alpha was used to determine the reliability of the instrument, yielding a value of 0.86.

2.2. Intervention

2.2.1. Role-playing training: This section explores the effectiveness of role-playing activities in fostering communication skills among deaf students. The intervention involved ten 90-minute training sessions designed to target specific communication skills as shown in Table 1.

2.3. Data Analysis

The normality of data distribution was assessed using the Kolmogorov-Smirnov test. Levene's test ensured the homogeneity of variances. Paired-sample t-tests compared mean pretest and posttest scores in each group. The chi-square test assessed group equivalence on demographic variables. One-way analysis of covariance (ANCOVA) in SPSS version 27 examined group differences on post-test scores while controlling for pretest scores as a covariate (Alpha was set at 0.05).

3. Results

Demographic results showed that the participants consisted of 16 girls and 14 boys. There were 10 ninth-grade students, 8 tenth-grade students, 4 eleventh-grade students, and 8 twelfth-grade students. A comparison of groups in terms of demographic variables is reported in Table 2.

Table 3 summarizes the mean and standard deviation (SD) of the research variables at pre-test and post-test. The role-playing training group showed a statistically significant increase in positive affect from pre-test (mean=11.27, SD=1.84)

Table 1: Content of role-playing training sessions

Session	Description
1	Objective: Familiarizing members with group rules Content: Introduction and familiarization with group members, purpose of group formation, number, frequency, and end time of sessions, explanation of group rules Expected behavior: Group members should be familiar with the rules and follow them.
2	Objective: Teaching nonverbal communication skills Content: Discussion of nonverbal communication skills and practice on developing communication and nonverbal skills including whispering, touching (e.g., shaking hands at the beginning of a social encounter, touching shoulders, patting the back, affectionate squeezing of others' hands) Homework: Complete assignments related to nonverbal communication skills Expected behavior: Learn these skills and apply them in your life.
3	Objective: Teaching empathy, assertiveness, and collaboration skills Content: Practice creating empathy in the other person and expressing oneself, performing the game in a similar way), touching the right way (meaning patting the back and putting your hand on the shoulder the right way) Homework: Assign homework about empathy when communicating with others Expected behavior: Learn empathy and assertiveness skills.
4	Objective: Teaching friendship skills, increasing social network, and social transformation Content: Neat appearance, smiling, complimenting, making friends (taking the initiative in friendship, inviting) Practice expressing feelings to a close friend and wishing them success, expressing feelings in happy occasions and condoling someone, introducing two friends to each other to strengthen social interactions. Homework: Assign homework on expressing emotions nonverbally. Expected behavior: Apply these skills in interactions with others.
5	Objective: Teaching self-awareness and assertive behavior Content: Practice self-identification and assertive behavior training, dealing seriously with life and connecting deeper with others, appreciating others, making requests, and rejecting unreasonable requests to meet individual and social needs and becoming familiar with one's rights. Homework: Assign homework on appreciating family and friends, making requests, and rejecting others' unreasonable requests. Expected behavior: Use these skills in different social situations and consider their own needs as well as the needs of others.
6	Objective: Introduction to different communication styles and their recognition in assertiveness. Content: Practice on differentiating between assertive, aggressive, and non-assertive behavior, identifying personal upsetting factors to recognize one's vulnerabilities in communication with others and try to address them. Homework: Assign homework on assertive behavior and identifying personal upsetting factors. Expected behavior: Use the correct communication style in assertiveness.
7	Objective: Teaching criticism receptivity. Content: Practice on receiving criticism and coping with it to accept one's mistakes and avoid excuses, maintain good humor and calmness, and avoid aggression. Homework: Assign homework on coping with and accepting criticism. Expected behavior: Group members should be able to be receptive to criticism in their personal lives.
8	Objective: Teaching how to criticize correctly. Content: Practice on effective criticism and anger management. Homework: Assign homework on how to criticize and explore the causes of anger and how to deal with it. Expected behavior: They should be able to criticize others correctly.
9	Objective: Teaching the correct way to deal with verbal and nonverbal humiliation and identifying the factors that underlie irrational beliefs. Content: Practice on expressing positive feelings to others and identifying the factors that underlie irrational beliefs and how to deal with verbal and nonverbal humiliation. Homework: Assign homework on responding to humiliation and appropriate behavior. Expected behavior: Respond correctly to verbal and nonverbal humiliation.
10	Objective: Summarizing the sessions. Content: Summary and presentation of a brief overview of the topics discussed and evaluation. Expected behavior: Group members should be able to behave assertively in different social situations and use the skills they have been taught in their lives.

to post-test (mean=18.60, SD=2.11), with a P value of 0.001. In contrast, positive affect scores in the control group did not exhibit a statistically significant change (mean=10.32, SD=1.06 at pre-test; mean=11.14, SD=1.66 at post-test; P=0.118). The role-playing training group exhibited a significant decrease in negative affect scores

from pre-test (mean=22.27, SD=3.08) to post-test (mean=15.60, SD=2.96) (P=0.001). No significant change in negative affect scores was observed in the control group (mean=20.32, SD=3.12 at pre-test; mean=21.71, SD=2.95 at post-test; P=0.220). The role-playing training group showed a statistically significant increase in social adjustment from the

Table 2: Comparison of groups in terms of demographic variables

Groups	Mean age (years)	Gender		Grade			
		Girl	Boy	Ninth	Tenth	Eleventh	Twelfth
Role-playing training	16.49±2.50	7 (46.7%)	8 (53.3%)	4 (26.7%)	5 (33.3%)	3 (20.0%)	3 (20.0%)
Control group	16.90±2.14	9 (60.0%)	6 (40.0%)	6 (40.0%)	3 (20.0%)	1 (6.7%)	5 (33.3%)
P	0.633	0.472		0.494			

Table 3: Mean and SD for positive affect, negative affect, and social adjustment

Variables	Groups	Pretest	Posttest	P (within-group)
		Mean±SD	Mean±SD	
Positive affect	Role-playing training	11.27±1.84	18.60±2.11	0.001
	Control	10.32±1.06	11.14±1.66	0.118
	P (between-group)	0.094	0.001	-
Negative affect	Role-playing training	22.27±3.08	15.60±2.96	0.001
	Control	20.32±3.12	21.71±2.95	0.220
	P (between-group)	0.096	0.001	-
Social adjustment	Role-playing training	40.87±5.21	53.15±7.00	0.001
	Control	42.28±4.40	43.20±5.01	0.598
	P (between-group)	0.430	0.001	-

SD: Standard Deviation

pre-test to post-test (mean=40.87, SD=5.21 at the pre-test; mean=53.15, SD=7.00 at post-test; P=0.001). Unlike the experimental group, the control group did not exhibit a significant change in social adjustment scores (mean=42.28, SD=4.40 at pre-test; mean=43.20, SD=5.01 at post-test; P=0.598).

Before conducting the analysis of covariance, it was ensured that the necessary assumptions were met. First, the absence of influential outliers in the research variables was confirmed based on the Kolmogorov-Smirnov test in Table 1. Thus, the assumption of normal distribution of data for the analysis of covariance was satisfied. Additionally, the Levene test was used to examine the homogeneity of variances (to ensure equal variances between the two experimental and control groups), which yielded the following results: Negative affect: P=0.890; Positive affect: P=0.958; Social adjustment: P=0.099. Subsequently, an analysis of covariance was used to determine the effect of the role-playing intervention on negative and positive affect and social adjustment in deaf students.

Negative affect scores showed a significant improvement from the pre-test to post-test in the experimental group, after controlling for pre-test scores (P=0.001). This suggests that role-playing training was effective in reducing negative affect among deaf students. Positive affect scores also exhibited a significant improvement from pre-test to post-test within the experimental

group, controlling for baseline scores (P=0.001). Consequently, the effect of role-playing training on improving positive affect in deaf students was confirmed. Social adjustment scores also demonstrated a significant improvement from the pre-test to post-test within the experimental group, after controlling for baseline scores (P=0.001). This suggests that role-playing training may be beneficial for enhancing social adjustment among deaf students.

4. Discussion

This study investigated the effect of role-playing training on negative and positive affect, as well as social adjustment, among deaf students. The results showed that role-playing training was effective in improving negative and positive affect and social adjustment in deaf students. The first finding indicated that role-playing training was effective in improving positive and negative affect in deaf students. This finding is consistent with the results of studies by Abeditehrani and colleagues (28) and Dyson and co-workers (29).

The results of this section can be explained by social competence model of Felner and colleagues (30). According to this model, deaf children need to have the capacity to control their emotions and arousal in stressful, anxiety-provoking, and anger-inducing situations to function effectively in social situations. These children struggle to control their

emotions and have difficulty adjusting to different situations, causing them to act impulsively (31). However, role-playing training allows them to reflect on what they are about to do before responding impulsively and emotionally, and by managing their emotions in exciting situations, they become more successful in adapting to the conditions and controlling negative emotions (21).

The results of the study also showed that role-playing training was effective in improving social adjustment in deaf students. These findings were consistent with the studies of Afshari (32), and Mansouri and co-workers (33). Jackson and Back (34) explained that the role-playing training program for deaf students helps them compensate for their social adjustment weaknesses and lack of behavioral repertoire, enriching it so that children can apply appropriate behaviors according to the situation. Since students have not yet reached abstract thinking to express their emotions and feelings, and this is more pronounced in deaf students due to their inability to communicate fully and comprehensively, we should seek a way for these students to express their emotions and feelings (35). By so doing, we can both understand the reason for their behavior and provide a ground for the expression and correction of such feelings.

Instead of relying on verbal and auditory communication, deaf students can easily express themselves through role-playing. The most natural dynamic and therapeutic process for students is to express their experiences and feelings, which is doubly important for deaf students. In the present study, the researcher provided an opportunity for the students to express their feelings and tried to establish indirect but deep communication with the students and help them understand the principles of communication and communication skills and improve their social adjustment. In fact, recognizing emotional expressions is a determining communication skill in humans, and the development of emotional understanding is considered a necessary aspect of a child's cognitive, social, and personal development. Sensitivity to facial expressions occurs in the early months of development (18). Although changing facial emotional states is considered a non-verbal skill, part of this skill develops in a verbal and auditory context. In deaf students, it is argued that the lack of auditory input during childhood has a detrimental effect on their ability to recognize facial emotional states.

Role-playing offers a valuable opportunity to address communication deficits in deaf students. Through participation in role-playing activities, these students can enhance their self-management skills, which are critical for establishing and maintaining healthy social interactions. One of the primary benefits of role-playing is that it transforms seemingly unmanageable situations into manageable ones. By engaging in personal exploration through role-playing, students can learn how to adapt to various situations. In the process, they prepare for life tasks, achieve challenging goals, and overcome setbacks. Finally, role-playing helps deaf students develop the skills necessary to thrive in social interactions.

4.1. Limitations

Since the present study was conducted with deaf students, caution should be exercised in generalizing the results to children with other sensory and motor impairments. Moreover, gender differences were not examined in this study. Another limitation of this study was using a self-report questionnaire which may have introduced bias into the results.

5. Conclusions

The present study provided preliminary evidence suggesting that role-playing interventions may be beneficial for deaf students. The results of the study suggested that engaging in role-playing activities led to a decrease in negative affect and an increase in positive affect. Moreover, these results suggested that role-playing offers a promising approach to addressing emotional and social challenges faced by this population. Future research is warranted to confirm these initial findings and explore the specific mechanisms underlying the potential benefits of role-playing for deaf students. Additionally, investigating the long-term sustainability of these effects and tailoring the intervention to address specific social situations could be valuable avenues for further research.

Ethical Approval

The research was approved by the Ethics Committee of Islamic Azad University, Tehran, Iran with the code of IR.IAU.SARI.REC.1402.270. Also, written informed consent was obtained from the participants.

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Authors' Contribution

Heydar Sayahi: Substantial contributions to the conception and design of the work, and the acquisition, analysis, and interpretation of data for the work, reviewing the work critically for important intellectual content. Samira Vakili: Substantial contributions to the conception and design of the work, and the acquisition, analysis, and interpretation of data for the work, reviewing the work critically for important intellectual content. Maryam Asaseh: Substantial contributions to the conception of the work, drafting the work and reviewing it critically for important intellectual content. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work, such as the questions related to the accuracy or integrity of any part of the work.

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