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Theater Improvisation Promoting Interpersonal Confidence of Student Teachers: A Controlled Intervention Study

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Abstract

This study examined the effects of a theater-based improvisation method for promoting student-teachers' self-rated social interaction competence. 39 undergraduate students participated in an intervention study applying the improvisation method in the context of teacher education. The intervention group (N=19) were trained in the basics of improvisation (7 weeks x 2.5 h) and the control group (N=18) received a shorter improvisation course after the study (2 days x 3.5 h). Participants filled out two self-report questionnaires assessing their interpersonal confidence and self-esteem before and after the intervention. Our results show that self-rated interpersonal confidence increased significantly for those participants, who scored low in the pre-test. On the other hand, there were no between-group differences in self-esteem. This might be due to more consistent nature of self-esteem, comparable to basic personality traits such as extraversion or neuroticism. The results of the study indicate that a relatively short improvisation intervention promotes the interpersonal confidence of those teacher-students who need it the most. This result concurs with previous studies, suggesting that including improvisation method in teacher education curricula can enhance teacher-students' social interaction capabilities and their responsive teaching.

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Keywords: Improvisation; interpersonal confidence; social interaction; teacher education; drama education.

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1. Introduction

When planning a lesson, a teacher arranges learning objectives, relevant substances and appropriate teaching methods into a coherent whole, adjusted to the level and diverse needs of the pupils. However, even the best-structured lesson will not proceed as planned in the presence of emotional turbulence between pupils, situational challenges (say, educational technology malfunctions) or any other unexpected issue affecting one pupil or the whole class. A readiness to change plans is required, or as Sawyer (2011) states: *"Great teaching involves many structuring elements, and at the same time requires improvisational brilliance"* (p. 2). By accepting the idea that teaching is also improvisational, we can use the theater-based improvisation method as a tool to develop the abilities of teachers to be flexible and constructive when teaching (Lehtonen, Kaasinen, Karjalainen-Väkevä, & Toivanen, 2016).

1.1. Fundamentals of Improvisation and Previous Research in Teacher Education Context

Here, improvisation means an approach to actors training, theater form and genre of drama education created in Europe (e.g. Konstantin Stanislavski) and in the United States in the 1960's by Viola Spolin (1999) and developed further by Keith Johnstone (1985). Besides being a popular genre of performing theater, improvisation is a suitable tool for the study of social interaction (Johnstone, 1985, 1999; Spolin, 1999). Being a highly flexible method and adjustable to the specific needs of research, the method works with groups as well as with individuals. One strength of the method is the possibility of step-by-step detection of how the course of an interaction is constructed (Lobman, 2006) and it aids understanding of how to be influential during your turn in a social interaction.

The main idea of improvisation is the *"Yes, and" -principle*, i.e. always accepting the idea of a partner ('yes') and elaborating it with another association ('and'). The new 'and' association is essential, for the partner may accept it in turn, and continue with a new elaboration. This ongoing give-and-take fosters the sense of cooperation and produces a shared ownership of the scene, where both partners create it equally (Sawyer, 2004; Lobman, 2006). For example:

"Would you like to go to the cinema?"
"Yes, and wouldn't it be nice if Cathy could join us?"
"Yes, and since it is her birthday, we might buy her ticket."
"Yes, and popcorn too."

The opposite of accepting is negating or blocking any given idea (or 'offer', as conceptualized in improvisational vocabulary), either verbally or non-verbally. Besides outright negations, i.e.

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refusing the partner's offer totally, there is a wealth of more subtle negations, such as interrupting, undermining, making jokes of the idea or non-verbal blocking. Negations are avoided since they prevent the improvisational scene developing further and inhibit collaboration between the partners.

In addition to accepting and blocking, basic concepts discussed in the theatre improvisation literature and used in the improvisation courses of this study are (i) *spontaneity*, i.e. reacting to any unpredictable situation without planning or censoring one's own ideas, (ii) *presence*, when one's attention is actively focused outward on one's partners and environment (Drinko, 2013b, p. 97), (iii) *group creativity,* as new insights emerging from the actions of all the participants (Sawyer, 2004, 2012) and (iv) *tolerating mistakes,* by reframing mistakes merely as events, where something else happens than what was anticipated (Johnstone, 1985, 1999; Lehtonen, Kaasinen, Karjalainen-Väkevä, & Toivanen, 2016; Spolin, 1999). There is no "right" or "wrong" in improvisation, only unexpected words or motions, which merely direct the scene differently than expected. (Barrett, 1998; Vera & Crossan, 2005) Therefore, the abundantly cultivated slogan *"a mistake is a gift"* among the practitioners of improvisation, means that the surprise element of mistakes may also offer imaginative turns, thus modulating mistakes into "gifts". For example, if a partner accidentally stumbles and falls in an improvisational scene, this might redirect the scene to calling the ambulance and heading to a hospital to treat her broken leg.

Another key concept of improvisation is *status expression*. In improvisation, status refers to a variety of verbal and non-verbal behaviors indicating the social dominance of a person (Johnstone, 1985, pp. 33–39). According to Mason, Magee, & Fiske (2014) "Status is a property of social relationships, negotiated between interacting individuals and revealed through their behavior" (p. 1131). When placed on a high-low continuum, high and low-status persons act differently in relation to time, space and other people (Smith & Magee, 2015). However, status is not a permanent feature but varies according to the situation and individuals. Since status expression is often subtle and subconscious, status exercises in the improvisational context focuses on becoming aware of and manipulating one's status expression. Thus, the understanding of status behavior may promote social interactions by providing means to elaborate one's own comprehensive expression in a more flexible and context-related manner (Coppens, 2002).

Previous research on improvisation in the context of teacher education and teacher-pupil interaction indicates that the method promotes both teachers' interaction skills and the interactional dimension and creativity of teaching (Lobman, 2005, 2014; Sawyer, 2012). Thus, improvisation has been explored when developing teachers' interaction skills (Lobman, 2006; Sawyer, 2004, 2006; Toivanen, Komulainen, & Ruismäki, 2011), classroom climate (Maples, 2007), early childhood teaching (Graue, Whyte, & Karabon, 2015) and enhancing the emotional intelligence of Master of

Business Administration students (Weis & Arnesen, 2014). According to Lehtonen, Kaasinen, Karjalainen-Väkevä, & Toivanen (2016) *"When the students realize that their teacher is present, listening and reacting to their initiatives, a positive atmosphere of mutual trust is promoted*" (p. 561). Also, Drinko (2013b, p. 93,97) and Lobman (2006) suggest that positive findings might be due to enhanced listening skills and situation-focused sensitivity, leading to a heightened perception of the subtle verbal and non-verbal cues of the pupils and finally to better ensemble collaboration.

1.2. Psychological approach to the fundamentals of improvisation

To better understand improvisation in the context of social interaction, we will also introduce a phenomenon hindering positive social interaction. *Fear of social rejection* is an essential factor guiding our behavior since humans as a social species possess fundamental motivations to belong and obtain social acceptance from relevant others (Cialdini & Goldstein, 2004; Klucharev, Hytönen, Rijpkema, Smidts, & Fernández, 2009; Wiggert, Wilhelm, Reichenberger, & Blechert, 2015). Social-evaluative threats especially trigger coordinated psychophysiological and behavioral responses to prevent negative effects (Gruenewald, Kemeny, Aziz, & Fahey, 2004; Frisch, Häusser, & Mojzisch, 2015; Massey-Abernathy, Byrd-Craven, & Swearingen, 2015).

The fear of social rejection is related to the *fear of failure*, since making mistakes may result in social exclusion or loss of the status of one's social self. Gruenewald, Kemeny, Aziz, & Fahey (2004) define threats to the social self *"...as situations that contain the potential to devalue one's social self by calling into question abilities, competencies, or traits on which a positive social image is based (e.g. evaluative situations, such as giving a presentation at work or school), or situations characterized by potential or explicit rejection"* (p. 916). It is not surprising, that our brains are fine-tuned to monitor, detect, and respond to errors and deviations from the expected development of social interactions (Somerville, Heatherton, & Kelley 2006; Klucharev et al. 2009; Gunther Moor, Crone, & van der Molen, 2010; Wiggert, Wilhelm, Reichenberger, & Blechert, 2015). Gradually, the anticipation of threatening mistakes in social situations may be transformed into a vicious circle of fear, paradoxically hindering social inclusion.

The psychological theory of emotion regulation strategy (Gross, 1999, 2015; Kalisch et al., 2005; McRae, 2016), known as *cognitive reappraisal*, seems to bear extraordinary similarities with improvisation. Cognitive reappraisal strategy has been used extensively as a treatment for stressful conditions, such as social anxiety. Cognitive reappraisal involves changing the way we think about a situation in order to change how we feel about it, for example reinterpreting negative aspects of stimuli (a person frowns as you speak) as neutral or positive (the person is not angry, but

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concentrating intensively on what you are saying) (Brooks, 2014; Kalisch et al., 2005; McRae, 2016).

Repeated exposure to fear-provoking stimuli is a central component of the various forms of cognitive behavioral therapies, allowing the subject to experience a reduction in anxiety, i.e. habituate (Amir, Weber, Beard, Bomyea, & Taylor, 2008; Finn, Sawyer, & Schrodt, 2009). From this perspective, improvisation might be regarded as a cognitive reappraisal strategy, due to the extensive desensitization of the fear of failure and social-evaluative threat. Numerous drills at the very beginning of improvisation training courses reconsider and reframe the meaning of a mistake (i.e. failure) and change its emotional connotation from negative to positive. Mistakes are reframed merely as events, where something else happens than was anticipated.

1.3. Interpersonal Confidence and Self-Esteem

Although improvisation has been used in teacher education to increase student teachers' social interaction skills, this study is focused on using improvisation to develop student teachers' *interpersonal confidence*. By interpersonal confidence, we mean the belief of one's capability to interact effectively in social situations. This was measured by a questionnaire developed by Novák (2017) for a similar improvisation intervention study on student teachers' interpersonal confidence. We distinguish the concepts of social skills and confidence, as individuals might have the ability and plenty of knowledge about social interaction behavior but lack enough confidence to use the skills and information they possess. Additionally, we use the term interpersonal confidence as a *situationally specific* feature, focusing on social interaction situations rather than the more general trait of self-confidence. Other studies on situationally specific self-confidence have been conducted for example in the context of nursing students (Chesser-Smyth & Long, 2013), medical students (Shochet, King, Levine, Clever, & Wright, 2013) and sports performance (Feltz, 1988), indicating that self-confidence can be fostered and contributes to skillful behavior.

We were interested in the effects of improvisation on student teachers' *self-esteem* as well. Here, we define self-esteem as one's perceived self-worth and self-acceptance. This was measured by Rosenberg's Self-esteem Scale, which is a widely used measure of self-esteem for research purposes (Robins, Hendin, & Trzesniewski, 2001; Rosenberg, 1965). Self-esteem has been considered a relatively stable trait of a person, though there is evidence of the fluctuation of self-esteem across one's life-span (see Orth & Robins, 2014). Like self-confidence, self-esteem does not necessarily reflect a person's objective skills and abilities (e.g. social interaction skills), i.e. people with low self-esteem may not reach their full potential in social interaction.

2. Purpose of the Study

We designed an improvisation course especially aimed at student teachers, providing an experiential learning environment to develop student teachers' social interaction abilities to be flexible and context-related when teaching. This is important, because teacher-pupil interaction has been linked to number of outcomes, for example with pupil's academic and social skills development and motivation (Hamre et al., 2013; Mashburn et al., 2008; Muhonen, Rasku-Puttonen, Pakarinen, Poikkeus, & Lerkkanen, 2016). We specifically hypothesized that improvisation intervention, as a cognitive reappraisal strategy against the social-evaluative threat, will enhance both interpersonal confidence and self-esteem of the student teachers.

3. Methods

3.1. Participants

Thirty-nine healthy student teachers (33 female, 5 male and 1 other) ranging in age from 20 to 40 years (M=27.1, SD=6.5) were recruited with an advertisement of an improvisation course for "individuals who are not confident about one's social interaction skills and experience stress in new, unexpected situations and when performing". The participants were undergraduate students who were studying to be class teachers (14), home economics teachers (8), early childhood teachers (7), special education teachers (4), subject teachers (3), and craft teachers (2), and one (1) architect student). They received course credit for participation in the study, except for the architect student, who studied in another university and could not be granted course credits. Thirty-eight (38) participants completed the study, as one participant did not provide answers to the post-questionnaire.

The sample criteria required that the participants had no experience of the improvisation method. However, some of the participants (3 students) had attended drama classes in primary or secondary school or had attended university drama workshops that might have included some improvisation. Since these drama classes took place 5 years prior to the intervention or the proportion of improvisation was minor in the university drama workshops, these subjects were permitted to participate in the intervention.

After the research period, the participants were asked if they identified any other factors that might have influenced their social interaction, for example, major life changes considering social relationships, physical or mental conditions or living environments. They were also asked if they had participated in any other social interaction course during the research period. One (1)

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participant reported participation in a professional interaction skills course which might have had an influence on social interaction and was omitted from the data.

3.2. Design and procedure

The design of the study was experimental in nature based on 2 (intervention group, control group) x 2 (pre-test, post-test) nonequivalent groups. The participants self-registered via an automated system either to the longer (intervention group) or shorter (control group) course, with the latter course organized after the study. Upon signing for the course, the participants were blind to the study condition. Thus, the assignment to experimental groups was pseudo-random (intervention group N=19, control group N=18). To control possible initial differences between the experimental groups, independent samples t-tests were performed on the pre-test measures of age, self-esteem and interpersonal confidence. No mean differences were found, indicating that the groups did not differ before the intervention.

The participants were informed about the study procedure and gave their written consent to participate. Ethical approval for the study was attained from the University of Helsinki Ethical Review Board for the Humanities and Social and Behavioral Sciences (statement 25/2017).

3.2.1. Measures and data collection

Before the research period, the participants filled out a demographics survey and two self-report questionnaires assessing their interpersonal confidence and self-esteem.

(1) Interpersonal Confidence Scale measures the level of anxiety/confidence produced by various social interaction situations (Novák, 2017). The questionnaire consists of 30 positively and negatively worded statements, which are rated on a Likert scale from 0 to 5 (0 = strongly disagree, 5 = strongly agree). These statements assess various competencies trained by improvisation, for example listening skills, performance confidence, tolerating mistakes, collaboration skills and spontaneity. Examples of items measuring a) listening skills are *"Usually I don´t listen to what other people are talking about"* and *"I am a good listener*"; b) performance confidence *"During presentation, it disturbs me if my cheeks blush or my hands shake"* and *"I enjoy the attention of other people*"; c) tolerating mistakes *" If I have made a mistake, I take it with humor"* and *"I am afraid of making mistakes when I perform";* d) co-operation skills *"I find it easier to work alone than with someone"* and "*When I talk to others, I take the other speakers into account";* spontaneity *"I have the courage to take chances when dealing with new situations"* and *"I usually want things to be done in the most familiar way".*

The reliability of the scale in these data was assessed with Cronbach's alpha coefficient, which indicated good internal consistency (0.829), i.e. the items of the scale measured the same phenomenon.

(2) Rosenberg's Self-esteem Scale is a widely used measure of self-esteem for research purposes (Robins, Hendin, & Trzesniewski, 2001; Rosenberg, 1965). The questionnaire consists of ten positively and negatively worded statements about the self-worth and self-acceptance of the respondent. The Likert scale in this study was 0-5 (0 = strongly disagree, 5 = strongly agree).

The intervention group completed the same two self-report measures after the intervention. The control group completed the self-report measures after an equivalent time between the questionnaires (Mdn=12 weeks) as the intervention group (Mdn=12 weeks).

Additionally, the pre and post-stress levels of the participants were measured in the laboratory setting. We implemented the Trier Social Stress Test (Allen, Kennedy, Cryan, Dinan, & Clarke, 2014; Kirschbaum, Pirke, & Hellhammer, 1993) followed by a mock-interview by an actor, and basic improvisation exercises with the researcher (the first author). The participants' electrical brain activity and the psychophysiological responses were measured during all conditions. These results will be reported elsewhere later to keep the present report appropriately focused.

3.2.2. Improvisation Intervention

The intervention (17.5 h) was held at a drama class of the University of Helsinki and conducted by a drama pedagogue specializing in theater improvisation (1st author). Improvisation sessions were conducted once a week over a 7-week period (30.10.-11.12.2017) and lasted for 2.5 hours.

All the sessions started with a physical warm-up. The first session began with a "drama agreement", i.e. agreeing on the guidelines for the group for achieving and maintaining a socially, physically and psychologically safe and relaxed atmosphere during the intervention. According to Johnstone (1985) *"If I want people to free-associate, then I have to create an environment in which they aren't going to be punished, or in any way held responsible for the things their imagination gives them"* (p. 118). The principles of improvisation were then introduced using the following exercises.

a. Games of failure. Exercises where succeeding was extremely hard, due to time pressure or other specific restrictions. The general idea was to reconsider the meaning of a mistake and change its emotional connotation from negative to positive by reframing mistakes merely as events, where something happens other than what was anticipated. For example, in a word game, where you were to develop a sentence with words beginning with S, like "Sally Sells Salt in Seattle", and failed to say it quickly enough, or used the wrong letter, or said a word already used, there was a round of

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applause and you would earn the right to order the next letter and choose the next player to develop a new sentence. Also, in this game mistakes were most welcome, since if no one made mistakes, the game would become extremely boring.

b. Listening exercises. These exercises trained the students to listen to the verbal expressions and be aware of the non-verbal expressions of their partners, as well as to listen, accept and present the participants own ideas and impulses. Group listening skills were practiced as well. One example is "One stops – everybody stops" exercise, where the whole group is just walking around the room, without any form or direction. Whenever anyone decides to stop, the whole group must stop simultaneously. The point is to stop at the very same moment, even if you could not see the initiator of the movement of stopping.

c. Exercises of spontaneity and presence. Exercises of an "empty mind", i.e. resisting the temptation to plan what to do or say and being ready to react to any unpredictable situations or actions of the other improvisers. Dividing or overloading the participants' attention and time pressure assist in abandoning preparation and being more present (Drinko, 2013a, pp. 69–70). There was an emphasis on not needing to be original, clever or funny, but any idea or action was acceptable. One of the first exercises was to tell an impromptu story in pairs, while being allowed to say only one word a turn, for example: *"Yesterday – I – wanted – to – go – swimming – and – I – called – my – friend – if – she – would – like – to – come – along".* This *Word at a Time* game makes planning impossible, because your partner will probably say something you couldn't expect, making any plan useless. Rather, being present, listening carefully what has been said and uttering the first word that comes to mind, keeps the story going on.

d. Exercises of accepting and blocking. Verbal drills on the 'Yes, and' principle of improvisation, i.e. always accepting the proposal of a partner ('yes') and elaborating on it with another association ('and'). The exercises of blocking emphasized the futility of negations since in the fictional world of improvisation any permutation of events is possible.

e. Status exercises. Since status behavior is often subconscious, status exercises focused on becoming aware of and manipulating it. These manipulations consisted of minor alterations in speech, attitudes and gestures, which helped in building different characters in improvisational scenes.

f. Improvisation techniques. Short, low threshold improvisation techniques performed by 2-4 actors at a time in front of the group. The first scenes lasted approximately 30 seconds, and the duration was gradually increased up to 2-3 minutes. The audience was asked to provide some elements for the scenes, such as the time or environment, profession or the relationship between the actors, an object, word or line to be introduced to the scene.

g. Discussions. These exercises were discussed immediately afterwards, to share and reflect on experienced feelings and insights.

If a participant missed the session, additional sessions were organized, where the peer participants guided the absentees through the missed exercises.

Besides the weekly improvisation sessions, the intervention included:

(1) Pre-course task. As a pre-course task, the participants wrote a maximum 2 pages of reflective text about their previous experiences of social interaction anxiety and expectations for the improvisation course.

(2) Learning diary. Participants wrote a learning diary throughout the course. The form was informal, but a few questions were provided to assist in reflecting course experiences, i.e. what did I discover today, where did I succeed, what caused problems.

(3) Weekly experimenting and observation exercises. Weekly exercises comprised the observation of the everyday social interaction, finding examples of the issues learned during the sessions, and experimenting with the strategies of improvisation and status expression at home, study and the work environments. Weekly exercises were assigned at the end of each session and reviewed in the opening conversation of the next session.

(4) Final course report and peer review. As the final course report, the participants submitted a summary of their learning diaries, which was given anonymously to two other participants for peer review. Thus, every participant reviewed two anonymous learning diaries and received two peer reviews, to expand the understanding of the different perspectives and experiences about improvisation.

3.2.3. Statistical analysis

The negatively worded *statements* of both the Interpersonal Confidence Scale and Rosenberg's Self-esteem Scale were reversed to positive, and sum variables were computed, producing each participant's mean score (0-5). Higher scores indicated higher interpersonal confidence and self-esteem.

The Johnson-Neyman (JN) procedure based on linear regression analysis was the primary statistical procedure used. JN was developed for research into psychology and education in 1936, after which it has been modified further (Johnson & Neyman, 1936; Potthoff, 1964; Preacher, Curran & Bauer, 2006). Like the Analysis of Variance (ANOVA), the modified Johnson-Neyman procedure tests not only for significant differences between experimental groups, but also, determines a "region of significance" within which the scores between groups differ (D'Alonzo, 2004; Ji, 2016; T. R. Johnson, 2016; Tunca, 2016). Since the JN procedure is an accurate statistical

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method for assessing the heterogeneity of the treatment effect (Lazar, Gansky, Halstead, Slajs, & Weintraub, 2013), using JN procedure we tested the levels at which the pre-test and the post-test values of interpersonal confidence and self-esteem differed statistically significantly between the experimental groups. Thus, the division between high and low pre-test categories was directly obtained from the JN analysis.

The paired-samples t-test was conducted to compare pre- and post-test values of interpersonal confidence and self-esteem in experimental groups. Also, Cohen's effect size value was calculated from the pre-post gain scores of interpersonal confidence and self-esteem to evaluate the practical significance of the intervention.

The effect of the participants with prior experience of improvisation (3) and the effect of the missed intervention sessions (1-2 missed classes for 7 participants) was checked with the Spearman Rank Correlation Test.

4. Results

4.1. Preliminary analyses

According to the test of normality (Shapiro-Wilk), the results of the pre- and post-tests were normally distributed ($p > 0.05$). Independent samples t-test was performed to pre-test measures of age, self-esteem and interpersonal confidence. No mean differences were found, indicating that the groups did not differ before the intervention (age $t(35) = 0.589$, $p = 0.560$, interpersonal confidence $t(35) = 0.876$, $p = 0.387$, self-esteem $t(24.233) = 1.287$, $p = 0.210$).

The results of the Spearman Rank Correlation Test indicated that there was no significant association between prior experience of improvisation or missed intervention sessions and interpersonal confidence or self-esteem (Table 1).

Table 1. Spearman Correlations

		1.	**2.**	**3.**	**4.**	**5.**
1. Pre Interpersonal Confidence	Correlation Coefficient					
	N					
2. Post Interpersonal Confidence	Correlation Coefficient	.694***				
	N	37				
3. Pre Self-esteem	Correlation Coefficient	.522**	.449**			
	N	38	37			
4. Post Self-esteem	Correlation Coefficient	.414*	.445**	.831***		
	N	37	37	37		

5. Missed intervention sessions	Correlation Coefficient	-0.420	-0.184	-0.034	0.127	
	N	19	19	19	19	
6. Prior experience of improvisation	Correlation Coefficient	0.232	-0.046	-0.013	-0.005	0.398
	N	38	37	38	37	19

Note: *p<0.05, **p<0.01, ***p<0.001, two-tailed.

4.2. Interpersonal confidence

For the intervention group, the paired t-test results indicated a significant increase of interpersonal confidence from the pre- to post-test (t (18) = -2.301, p = 0.034). In the control group the increase was not significant (t (17) = -0.852, p = 0.406). Means and standard deviations of pre- and post-tests are presented in Table 2.

The Johnson-Neyman test analysis revealed that the effect of the intervention was significant for participants with low pre-test scores of interpersonal confidence, but not for those with high scores (Fig.1). The region of significance ranged from the lowest score to the pre-test value of 2.67.

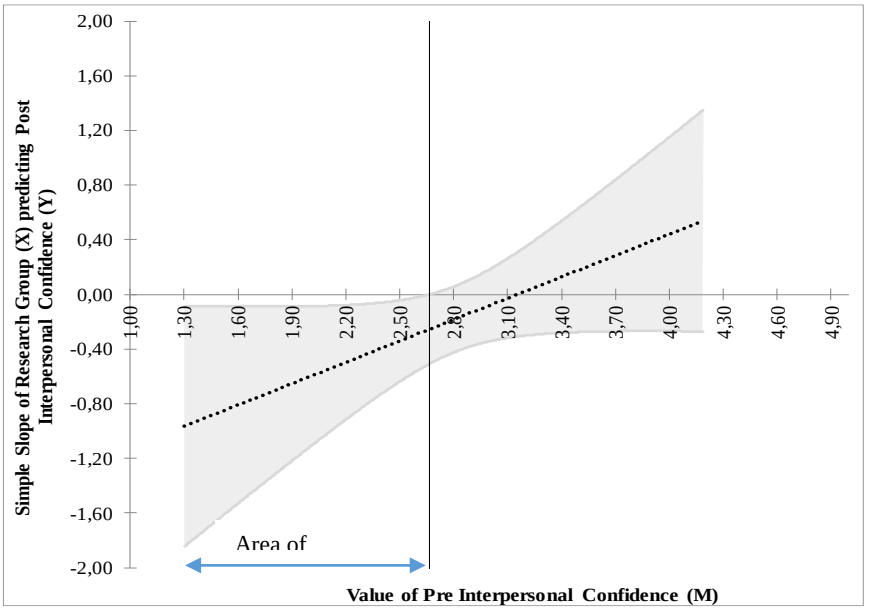


Figure 1. Johnson-Neyman plot of the interaction between treatment group and time (pre-posttest of interpersonal confidence)

The horizontal axis represents the pre-test values of the interpersonal confidence and the dotted line is the regression line of treatment group predicting post-test values of interpersonal confidence. The shaded area indicates the corresponding 95% confidence intervals (CI). The CI slope crosses over the significance barrier at 2.67, indicating that the difference of the experimental groups is significant when the pre-test value is less than 2.67.

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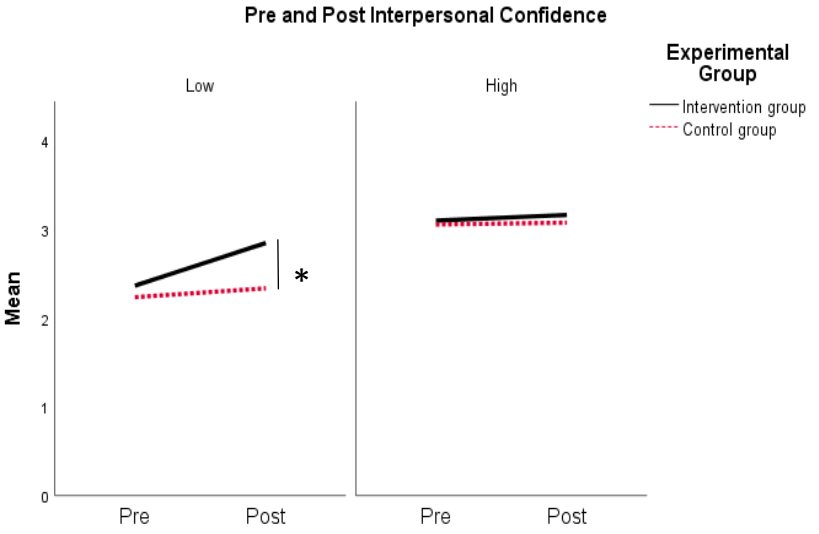


Figure 2. Pre and post interpersonal confidence. Experimental groups are divided to lower and higher interpersonal confidence categories by Johnson-Neyman test (p<0.05*).

Figure 2. differential treatment effects of the intervention on interpersonal confidence

Cohen's effect size value at d=0.96, calculated from the pre-post gain scores for interpersonal confidence suggested a large practical significance. When the low and high interpersonal confidence categories were examined separately, the effect size of the low category was larger (d =1.04) than in the high category (d = 0.13).

4.3. Self-esteem

The results of paired t-test indicated a significant increase from pre- to post-test in the level of self-esteem for the intervention group (t (18) = -2.670, p = .016), but not for the control group (t (17) = -1.938, p = .069). Means and standard deviations of pre- and post-tests are presented in Table 3.

Table 3. Pre- and Post-Test Values of Self-Esteem

		M	**SD**	**N**
Intervention group	Pre	3.72	0.58	19
	Post	3.95	0.59	19
Control group	Pre	3.32	1.19	18
	Post	3.49	1.11	18

(M = mean, SD = standard deviation, N = number of subjects)

The Johnson-Neyman test analysis failed to find any differences between the experimental groups in their level of self-esteem after the intervention (Fig. 3).

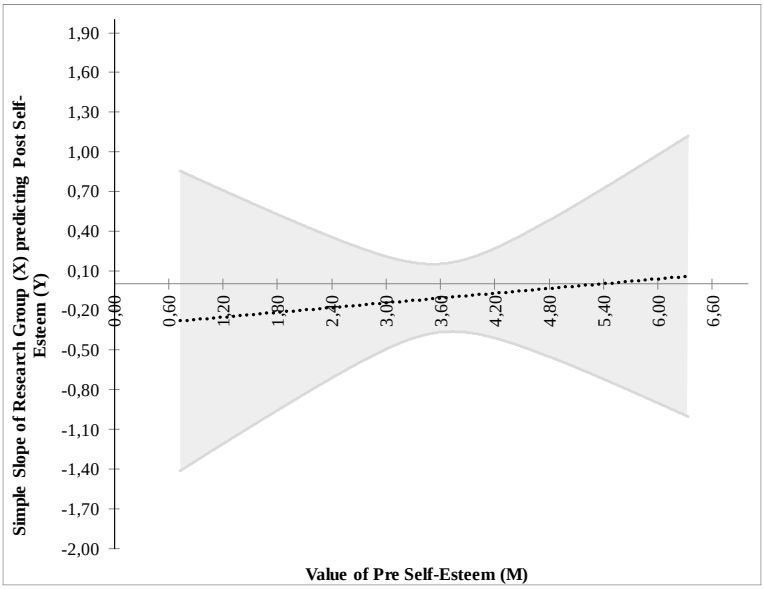


Figure 3. Johnson-Neyman plot of the interaction between treatment group and time (pre-posttest of self-esteem).

The horizontal axis represents the pre-test values of the self-esteem and the dotted line is the regression line of treatment group predicting post-test values of self-esteem. The shaded area indicates the corresponding 95% confidence intervals (CI). The CI slope does not cross over the zero point at any of the pre-test value, indicating that the differences of the experimental groups are not significant.

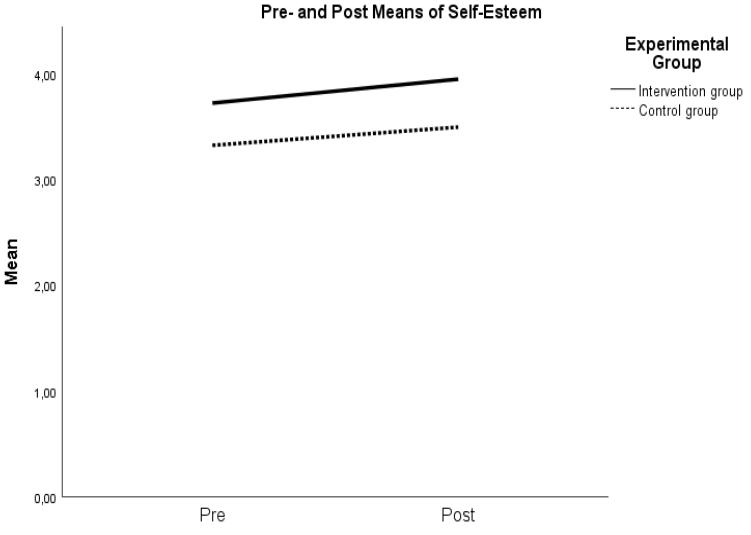


Figure 4. Pre- and post means of self-esteem.

Figure 4. Treatment effects of the intervention on self-esteem

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Cohen's effect size value calculated from the pre-post gain scores of self-esteem suggested a low practical significance (d = 0.14).

5. Discussion and Conclusion

This study investigated the effects of theatre-based improvisation methods in the context of teacher education. Improvisation training cultivates a specific skill set of tolerating mistakes, listening skills, spontaneity, presence, performance confidence and collaboration skills, which might contribute to the social interaction competence of the student teachers. According to the socio-constructivist learning approach, knowledge and understanding are constructed in interaction with others (Powell & Kalina, 2009). Therefore, good social interaction competence enables teachers to support their pupils' collaboration skills and their learning as well. We hypothesized that improvisation intervention promotes interpersonal confidence and self-esteem of student teachers thus potentially benefiting their future teaching and learning.

When pretest to post-test interpersonal confidence scores were compared, there was a statistically significant increase in the intervention group but not in the control group. However, we found that all participants did not respond similarly to the intervention. Compared to the control group, there was an increase for the student teachers with the lowest interpersonal confidence, but not for the student teachers with the highest interpersonal confidence. This was in line with the effect size of both categories, indicating stronger practical significance of the intervention for the student teachers with the lowest interpersonal confidence.

This finding raises intriguing questions. Why did the student teachers with the lowest interpersonal confidence gain superior benefit from improvisation intervention? One explanation might be the ceiling effect. Perhaps the students with higher interpersonal confidence were already so confident, that there was no potential for improvement. However, their mean value of posttest interpersonal confidence was 3.16 on the scale of 0-5 (maximum value 3.6 in both experimental groups), which does not support the ceiling effect explanation. Certainly, the less confident student teachers had more potential for change, but that does not necessarily mean that the change will occur. On the contrary, one might presume that more confident students would volunteer more quickly for improvisation exercises, thus gaining more training and developing more confidence through repeated learning experiences. However, this intervention was structured in such a manner, that everybody participated equally in each exercise.

Another possible explanation brings us back to the fundamentals of improvisation. Tolerating and redefining mistakes enables relaxation in the improvisational scenes because there is no

pressure to succeed. This simple modification has far-reaching effects. Not only do improvisational scenes get bonus twists, but it is likely, that the social stress of the participants diminishes. As the fear of failure diminishes, it is possible to allocate attentional resources outward instead of monitoring one's own distressed feelings (*What if I fail? I must succeed!)* (Drinko, 2013a, p. 73, 82). Presuming the less confident student teachers were more stressed in social situations, they would benefit more from learning to tolerate mistakes and disengaging rumination. This might channel their cognitive resources to perceiving the subtle cues of the social situation (i.e. prosody of the voice, non-verbal expression), which in turn would lead to more situation-focused sensitivity and context-related social interaction (Rapee & Heimberg, 1997). Some support for this hypothesis is provided by Amir et al.'s (2008) study, whose attention training procedure allowed socially anxious participants to disengage their attention from threat-relevant information. If anxiety in social situations is a response to perceived threatening stimuli (Rapee & Heimberg, 1997), the cognitive reappraisal of these stimuli – as redefining the presumed negative consequences of mistakes – would diminish the stress response and lead to the reduction of anxiety.

The self-esteem increased significantly from pretest to post-test for the intervention group but not for the control group. However, we failed to see between-group differences in self-esteem. This might be due to more consistent nature of self-esteem, comparable to basic personality traits such as extraversion or neuroticism (Robins & Trzesniewski, 2005).

There are some limitations in the study that require more research. A control group of a different type of intervention might be worth studying, for example a group rehearsing non-improvised plays for the same duration as the improvisation group. It may be assumed that the social cohesion of the group is the contributing factor to the increased interpersonal confidence, or the possibility to act out different roles in the fictional reality of a play, thus expanding self-expression skills. Nevertheless, this kind of intervention would not prepare participants to tolerate unpredictable social situations nor mistakes, which improvisation does.

In conclusion, the results of the study indicate that a relatively short improvisation intervention does promote the interpersonal confidence of those teacher-students, who need it the most. This is important, because teacher-pupil interaction has been linked to pupils' motivation and development of academic and social skills. This finding is in line with previous research, suggesting that including the improvisation method in teacher education curricula might promote student teachers' social interaction capabilities.

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