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A Brief Acting Experience Fosters Empathic Concern

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Abstract

Acting is closely related to theory of mind and empathy, which are fundamental abilities to maintain interpersonal relationships and facilitate cooperation among people. Acting experience intervention is known as one instrument to foster theory of mind and empathy; however, empirical evidence on the effects of brief acting experience in a laboratory setting remains scarce. To obtain further evidence to support the effects, we assigned 47 Japanese participants randomly to either an acting condition where they experienced a play in a group of three people in a 60-minute session or a control condition and measured their levels of theory of mind and empathy three times (one day before the intervention, soon after the intervention, and a week after the intervention). As expected, brief acting experience improved the level of empathic concern. However, no effect of acting was found in theory of mind and the other facets of empathy. Implications for future work in applied settings are discussed.

Keywords: brief acting experience, empathic concern, theory of mind, intervention, Japanese

Introduction

In daily communication, the ability to detect and correctly interpret others' cognitive and affective states is crucial to the maintenance of interpersonal relationships and the facilitation of cooperative behaviours. These abilities include theory of mind, which refers to the ability to infer and simulate mental processes functioning in another person (Quesque & Rossetti, 2020), and empathy, which refers to an affective response arising from one's understanding of how the other person is feeling (Decety & Svetlova, 2012). Recent research has provided empirical evidence for a neural basis of theory of mind and empathy, suggesting their respective neural networks are associated in an overlapping but distinct manner (Völlm et al., 2006). Corresponding to this, previous findings indicate that theory of mind and empathy are different processes. For instance, mentalizing requires a

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cognitive inference about mental state, not an emotional response to another person's state of mind (Singer, 2006).

Moreover, previous research documented age changes in theory of mind and empathy. Evidence suggested that the prefrontal cortex underlying theory of mind and empathy develops more slowly than other brain areas and matures last (Singer, 2006), indicating that theory of mind and empathy and the related neural substrates develop until late adolescence. That said, evidence on what kinds of learning and experience improve and foster theory of mind and empathy, particularly in adolescence, remains unclear. Although evidence has been limited, previous research suggests a possibility that acting training for students helps enhance their ability of theory of mind and empathy (Goldstein & Winner, 2012). In the current research, we report additional evidence on the effect of acting experience on theory of mind and empathy by testing Japanese undergraduates with a brief intervention program.

Acting is clearly relevant to theory of mind and empathy because actors need to become another character by imagining and thinking deeply about the character's dispositions, beliefs, and lifestyles and reflecting about the mind. Modern acting technique emphasizes training leading actors to think about the inner side of a role and to become the character, rather than creating a credible and acceptable character (Stanislavski, 1989). Thus, actors need to repeatedly engage in entering into another character and feeling the character's emotions by using empathy to become the character. Indeed, there is empirical evidence that professional actors show higher empathy quotient scores and higher levels of extraversion, openness, and agreeableness than the general population (Nettle, 2006).

Additionally, by testing students, Goldstein et al. (2009) found that those with acting experience through elective acting classes and theater education had more advanced theory of mind than those without acting experience, although there was no difference between the two groups in empathy. Furthermore, acting even influences neural substrates related to self-processing. Brown et al. (2019) found that the dorsomedial and ventromedial prefrontal cortex were deactivated when actors were asked to imagine being a different person (e.g., Romeo for male participants and Juliet for female participants) by getting into the person, compared to when they were asked to take their own perspective. The results indicating the effects of acting on the prefrontal cortex might suggest its indirect effect on theory of mind and empathy.

However, the studies examining those with acting experiences suffer from a flaw in that the effects of experience in acting cannot be separated from those of actors' personality traits. An alternative interpretation based on a selection bias, such that extraverts with higher empathy are likely to have an interest in acting, may be possible. Further work warrants an investigation of the independent effects of acting experience. In one attempt, Goldstein and Winner (2012) tested students' levels of theory of mind and empathy before (at the beginning of their freshman year) and

after a 10-month period of acting training. Such a longitudinal method enables researchers to examine the effects of acting experience in a convincing way.

The results showed that although those in both groups showed higher levels of theory of mind and empathy over the time period, the trend was more obvious in those receiving acting training than in those in the control group (i.e., those taking art classes). However, this still poses a problem based on a selection bias. In Goldstein and Winner (2012), students were divided into two groups based on whether they selected acting or arts (specifically, music or visual arts). Because the authors failed to assign students randomly to either group, the same issue of selection bias remained.

Randomly assigning children to one of four groups (keyboard lessons, voice lessons, drama lessons, and no lessons), Schellenberg (2004) measured their IQ levels and adaptive and maladaptive behaviours before and after a 36-week period of lessons. The results showed that although IQ increased over the time course, the trend was more evident in the two music (keyboard and voice) groups than in the drama group and the no lessons control group. Interestingly, only the drama group exhibited a greater increase in adaptive behaviours over the time course.

Although this researcher did not measure either theory of mind or empathy, the results suggested that acting training helps foster an individual's social functioning. More recently, Schwenke et al. (2021) demonstrated that those assigned to an intervention group that was to complete a 6-week improvisational theatre training program showed greater increases in creativity and psychological well-being measured by self-esteem, self-efficacy, and resilience compared to those assigned to a control group.

Furthermore, Watanabe and Kusumi (2021) considered differences in the extent to which individuals could be absorbed in a story and examined a possibility that individual differences might moderate the effects of acting experience in a laboratory setting. They assigned Japanese undergraduates to one of two conditions. In the acting experience condition, they asked participants to read a dramatic script, complete a questionnaire on the content of the script, plan how they would present the play based on an experimenter's advice, make a practice, and finally, perform the play in front of the experimenter.

In contrast, in the control condition, they asked participants to read a dramatic script and summarize the content. It took about 45 minutes to complete the task in either condition. Notably, participants in both conditions participated in this study individually. Thus, participants in the acting experience condition played alone. Watanabe and Kusumi (2021) measured participants' levels of theory of mind and empathy three times: one day before the intervention, soon after the intervention (on the same day), and a week after the intervention.

The results showed that acting experience produced an increased theory of mind and empathic concern soon after the intervention but only in those who were more absorbed in the content of the script. Although the moderating effect of being absorbed in the content was not significant when the researchers measured theory of

mind and empathy a week after the intervention, the trend was sustained. It is worth noting that Watanabe and Kusumi (2021) provided empirical evidence that a much shorter acting experience (specifically, about 45 minutes), compared to lessons taught for a semester in previous research, can improve theory of mind and empathy in certain people (i.e., those who can be absorbed in the story). However, given that one of the factors characterizing drama is collaboration, it would be uncommon for individuals to plan by themselves how they would perform and perform alone based on their own plan. The unusual setting of the acting experience condition might thus reduce the effectiveness of acting on enhancing theory of mind and empathy.

Building on the findings of Watanabe and Kusumi (2021), our goal was to provide further evidence for the effects of a brief acting experience on theory of mind and empathy. As in Watanabe and Kusumi (2021), we used the Reading the Mind in the Eyes Test (RMET; Baron-Cohen et al., 2001) to measure the level of theory of mind and the Interpersonal Reactivity Index (IRI; Davis, 1980) to measure empathy. Revising the procedure used in Watanabe and Kusumi (2021), we randomly assigned participants to the acting experience condition in which they work together and perform in a small group of three people. Moreover, we used a different dramatic script to generalize the findings. We expected that this more natural means of intervention would enhance individuals' theory of mind and empathic concern, even if individual differences in the level of being absorbed in the story were not considered.

Method

Participants

We tested 47 Japanese undergraduates (25 females and 22 males, M_{age} = 20.36, *SD* = 1.50) at Nagoya University, who had registered a paid subject pool organized independently of psychology classes and signed up for this study, which we titled "A Survey on Interpersonal Communication." All participants were native Japanese speakers. Their majors varied (e.g., law, economics, agriculture) and were not specific to psychology. We determined the sample size based on Watanabe and Kusumi (2021) collecting the data of 20 participants per condition. We excluded three participants (two females and one male) from the following analysis because they reported they had acting experience (i.e., 22 participants for each of the two conditions in the second phase; the following procedure section gives details about the conditions). Thus, we analysed only the data from the remaining 44 participants who had no acting experience. A power analysis regarding a single predictor of a multiple regression model based on G*Power 3.1 (Faul et al., 2009) indicated that this sample size was in accordance with the one computed based on a value for desired power of .81 and on a medium effect size (f^2 = .15). Participants received 2,000 yen (approximately USD 20) for their participation in all three phases.

Materials

We used a Japanese dramatic script for a 10-minute play titled *His Present* (Takahashi, 2004). It includes three characters: Yuri (a 24-year-old female jewellery store worker), Takuya (a 29-year-old male office worker), and a colleague of Yuri at the jewellery store. Yuri is the live-in girlfriend of Takuya. Yuri and Takuya have been having a spat. One day, Takuya visits the jewellery store; Yuri did not know about his visit in advance. The colleague at the jewellery store, who is unaware of the relationship between Yuri and Takuya, serves Takuya while Yuri is behind the colleague. Through the conversation between the colleague and Takuya, which reveals his caring attitude toward Yuri as well as his minor concern over his future relationship with her, Yuri learns with feelings of surprise and happiness that the purpose of his visit was to buy a ring to present to her and propose marriage.

Experimental Tasks

We used two measures to test the levels of perspective-taking and empathy. One is the Asian version of the RMET, which was developed by Adams et al. (2010). On each page of the task booklet, participants were presented with a photograph of human eyes, surrounded by four words (one target word and three foils) referring to mental state (e.g., irritated, sarcastic, worried, and friendly). Their task was to choose one word they thought was the most suitable for expressing the thoughts and feelings of the person in the photograph. They repeated the same task 36 times with different sets of photograph stimuli and mental state words.

The other measure is a Japanese translated version of the 28-item IRI developed by Himichi et al. (2017). The measure consists of four 7-item subscales: empathic concern (a tendency to experience feelings of warmth, sympathy, and concern toward others, e.g., I often have tender, concerned feelings for people less fortunate than me), perspective taking (a tendency to adopt another's psychological perspective, e.g., I try to look at everybody's side of a disagreement before I make a decision), personal distress (a tendency to have feelings of discomfort and concern when witnessing others' negative experiences, e.g., In emergency situations, I feel apprehensive and ill at ease), and fantasy (a tendency to identify strongly with fictitious characters, e.g., I daydream and fantasize, with some regularity, about things that might happen to me).

We asked participants to rate how well each item described them using a 5-point scale ranging from *does not describe me well* (1) to *describes me very well* (5). Cronbach's alphas were .81 (first phase), .84 (second phase), and .86 (third phase) for empathic concern; .73 (first phase), .75 (second phase), and .78 (third phase) for perspective taking; .68 (first phase), .82 (second phase), and .83 (third phase) for personal distress; and .82 (first phase), .88 (second phase), and .90 (third phase) for fantasy.

Procedure

This study consisted of three phases. In the first phase, we tested participants in small groups of up to six people. On arrival at the lab, we told them that this study was about communication and emotion recognition, and we gave each of them a booklet about the RMET. After completing the RMET, they received and completed a questionnaire containing the IRI.

In the second phase, participants visited the lab again one day after the first phase, and we randomly assigned them to two conditions. In the acting experience condition, we tested participants in small groups of three. First, we asked them to introduce themselves and engage in a colouring task together as an icebreaking activity. We then told them that they would experience a play in the group of three people by following some steps given by an experimenter. In the first step, we distributed a dramatic script and provided a summary of the characters. We then asked them to read the script once in silence while taking the perspectives of and stretching their imagination toward the characters based on the summary.

In the second step, we cast the roles in the play and then asked them to read the script in a flat voice once while standing. In the third step, they discussed the content of the script with the experimenter to improve their understanding of it. To facilitate discussion, the experimenter raised five points regarding important scenes and the characters' feelings and asked the participants to make comments on the points. In case they did not make any comments or their ideas were quite different from the expected ones for performing the play, the experimenter explained the correct ones. In the final step, the experimenter asked them to practice freely for 10 minutes. After that, they performed in front of the experimenter and a video camera recording the play. It took about 50–60 minutes in total.

Meanwhile, we escorted participants in the control condition into a different laboratory room, where they received the same script and read it once in silence. We instructed them in the same way as those in the acting experience condition in the first step. However, we neither instructed them with further steps nor asked them to perform. Finally, participants in both conditions completed the RMET and a questionnaire containing the IRI and a 9-item measure with a 5-point scale (1 - *strongly disagree*, 5 - *strongly agree*) to check the manipulation of acting experience (e.g., "I felt as if I became one of the characters," "I willingly projected myself into the characters in the story as if I prepared for playing a role"). In the third phase, participants visited the lab again a week after the second phase and completed the RMET and IRI in the same way as they did in the first phase.

This study was reviewed and approved by the ethics committee at Nagoya University. The participants provided written informed consent at the beginning of the study. All responses were kept confidential.

Results

Manipulation Check

Because reliability was acceptable for the 9-item measure (α = .89), we computed the mean ratings in both conditions. Those in the acting experience condition (M = 3.51, SD = 0.68) were higher than those in the control condition (M = 2.82, SD = 0.94) in the ratings, $t(42) = 2.78$, $p = .008$, $d = 0.84$, indicating greater understanding of the content of the dramatic script and the feelings of the characters. This suggests that the acting experience was successfully manipulated.

RMET

Participants' responses were coded as 1 when they chose the target word or 0 when they chose one of the three foil words. We computed the mean score for each participant for each phase as accuracy in this task. Table 1 presents the means. We assessed the effect of the acting experience manipulation on the RMET by controlling participants' accuracy measured in the first phase as a baseline. Thus, we performed a multiple regression analysis on the accuracy in each of the second and third phases by entering the condition (1 = acting experience, and 0 = control) and accuracy in the first phase. Table 2 presents the results of accuracy in the second and third phases. The main effect of the condition was not significant either in the second phase (b = .01, SE = .03, p = .74) or in the third phase (b = .01, SE = .03, p = .76).

Table 1

Mean Accuracy in RMET and Mean Scores in IRI in the Two Conditions (Standard Deviation in Parentheses)

	RMET	EC	PT	PD	FS
First phase					
Acting	.73 (0.11)	3.58 (0.64)	3.16 (0.55)	3.41 (0.55)	3.66 (0.82)
Control	.65 (0.10)	3.28 (0.80)	3.12 (0.81)	3.15 (0.65)	3.14 (0.78)
Second phase					
Acting	.73 (0.13)	3.75 (0.67)	3.31 (0.60)	3.37 (0.58)	3.61 (0.83)
Control	.67 (0.10)	3.23 (0.73)	3.10 (0.63)	3.10 (0.81)	2.99 (0.81)
Third phase					
Acting	.72 (0.12)	3.64 (0.71)	3.25 (0.64)	3.25 (0.61)	3.58 (0.88)
Control	.67 (0.11)	3.15 (0.82)	3.04 (0.72)	2.99 (0.80)	2.78 (0.80)

Note. EC = Empathic concern, PT = Perspective taking, PD = Personal distress, FS = Fantasy.

IRI

We computed the mean scores of the four subscales for each participant for each phase. Table 1 presents the means. As we did for the RMET, by performing a multiple

regression analysis, we assessed the effect of the acting experience manipulation by controlling participants' mean scores in the first phase as a baseline. Table 2 presents the results on the mean scores in the second and third phases.

Empathic Concern

The main effect of the condition was significant in the second phase (b = .25, SE = .09, p = .008), suggesting that the acting experience increased the participants' level of empathic concern. The trend was likely maintained, although the main effect of the condition turned out to be nonsignificant, b = .20, SE = .10, p = .055.

Perspective Taking

The main effect of the condition was not significant, either in the second phase (b = .18, SE = .12, p = .13) or in the third phase (b = .18, SE = .13, p = .16).

Personal Distress

The main effect of the condition was not significant, either in the second phase (b = .01, SE = .12, p = .95) or in the third phase (b = -.004, SE = .12, p = .97).

Fantasy

Whereas the main effect of the condition was not significant in the second phase (b = .16, SE = .14, p = .25), it proved to be significant in the third phase (b = .31, SE = .12, p = .02). However, this trend suggests that the level of fantasy in the control condition somehow decreased over the time period rather than increasing by acting experience.

Table 2

The Results of Multiple Regression Analyses Predicting RMET and IRI in the Second and the Third Phases

	RMET		EC		PT		PD		FS	
	b	*p*	*b*	*p*	*b*	*p*	*b*	*p*	*b*	*p*
Second phase										
Condition	0.01	.74	0.25	.008	0.18	.13	0.01	.95	0.16	.25
First phase	0.61	< .001	0.89	< .001	0.69	< .001	1.01	< .001	0.87	< .001
	R^2 = .37		R^2 = .86		R^2 = .62		R^2 = .74		R^2 = .76	
Third phase										
Condition	0.01	.76	0.20	.055	0.18	.16	-0.004	.97	0.31	.02
First phase	0.63	< .001	0.96	< .001	0.76	< .001	1.01	< .001	0.94	< .001
	R^2 = .38		R^2 = .84		R^2 = .63		R^2 = .74		R^2 = .83	

Note. Condition: 0 = control, 1 = acting, EC = Empathic concern, PT = Perspective-taking, PD = Personal distress, FS = Fantasy.

Discussion

In this study, we investigated whether a brief acting experience (less than 60 minutes) would improve individuals' levels of theory of mind and empathy. Those in the acting experience condition showed a greater increase in empathic concern than those in the control condition. The trend likely continued until a week after the acting experience. However, there was no effect of acting experience in terms of the improvement of theory of mind and the other facets of empathy.

Comparing the current findings with those of Watanabe and Kusumi (2021), it is worth noting that the brief intervention program used in this study, which included collaborative work on playing, was more effective for improving one's empathic concern. Specifically, the improvement of empathic concern was found despite potential individual differences in the extent to which participants could be absorbed in a story. Additionally, both studies failed to show any effect of acting on the other facets of empathy. At least in this study, although most of the trends were not significant, the brief acting experience tended to increase empathic concern and perspective-taking, and decrease personal distress and fantasy.

Empathic concern is related to one's experience of other-oriented feelings of sympathy and concern for others' misfortune. Perspective-taking is the cognitive ability to take the perspective of another person. Meanwhile, personal distress and fantasy include the first-person viewpoint. For instance, personal distress refers to how an individual feels discomfort and anxiety in social situations. Fantasy, which refers to an individual's tendency to transform oneself into the thoughts and feelings of fictitious characters, may need self-awareness. Thus, acting experience, which leads a person to get into the character and perceive it to be oneself, may facilitate empathic concern and perspective-taking involving "another's viewpoint" but may make the person insensitive to the awareness of one's own emotional processes, leading to a decrease of personal distress and fantasy.

Inconsistent with our expectations, we failed to find the effect of acting experience on theory of mind. Given the limited findings of Watanabe and Kusumi (2021) on theory of mind, we speculate that a brief acting experience would not be enough to improve the level of theory of mind. Even if a brief acting experience has an impact on theory of mind, individual differences in traits, including one's motivation and ability to immerse in a story, would be essential. A long-term program with repeated training of immersing into narratives would rather help cultivate the traits to immerse in a story. In turn, the experience of training and the traits may interact to improve cognitive processes related to the simulation of the other person's mental state.

Given the important implications of theory of mind and empathy for interpersonal functioning, particularly for teachers in the classroom and business leaders, it is useful to have a knowledge of how theory of mind and empathy are cultivated in students and employees. At least, the empirical evidence provided by this research will contribute to our understanding of how empathic concern can be

fostered. A brief acting program is a convenient and easy way to facilitate empathic concern. It also saves substantial time. Moreover, empathic concern is one of the central facets of empathy, which influences prosocial behaviours.

That said, the limited effect of a brief acting experience suggests that there is still room to find a better means of intervention. For instance, given the effect of brief mindfulness meditation on the improvement of theory of mind and empathic concern (Tan et al., 2014), using multiple brief methods (e.g., mediation and acting) may be more effective to cultivate theory of mind and empathy and can still save time. Further empirical evidence will be needed to search for a better means of intervention to enhance theory of mind and empathy.

This research has some limitations to be addressed in future research, in addition to those mentioned previously based on the limited evidence. First, we recruited only college students as a convenience sample, like many studies in psychology. Also, our sample size is relatively small. Further work with a larger number of samples, including more balanced, representative ones, is needed to confirm the current findings. Second, despite a random assignment to either group in the second phase, those who exhibited higher scores in the RMET and IRI were likely to be assigned to the acting experience condition. The unexpected sampling bias might cover the effect of acting experience on theory of mind and empathy. Third, although the measurements of the RMET and IRI have often been used to assess the levels of theory of mind and empathy, these self-reporting measurements may be insensitive for detecting the effect of acting experience. Examinations of behavioural consequences and brain responses to assess the influence of acting experience intervention would be desirable in the future.

Despite these limitations, this research demonstrates that brief acting intervention is a convenient and practical instrument for facilitating empathic concern, which is the core facet of empathy functioning for maintaining interpersonal relationships and fostering prosocial behaviours. Future research clarifying the consequences of brief acting intervention and exploring its effectiveness in applied settings is crucial to establish the generalizability of the current findings.

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