

A Study on Cultivating Pre-Service Teacher Empathy

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Abstract. This study investigated empathy of pre-service teachers specializing in primary-school education. It was conducted to determine the factors that affect the empathy levels of students by normal University. The research questions, developed in the countryside context, aimed to determine the roles of gender, normal university or non-normal university, academic education, parental rearing patterns and personality in the empathy levels of pre-teachers. The study group consisted of students ($n=287$), including 170 normal university students practicing teaching in a rural area. An independent *t*-test was used to determine whether the empathy of pre-service teachers varied by gender and others factors. The analyses found that the student's average empathy was high and their performance on the concern dimension of empathy varied by gender, normal university or non-normal university. The results also showed that the students' scores on the personal distress dimension of empathy varied by academic education and personality characteristics. There were no significant differences in other dimensions.

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THE English word empathy is derived from the Ancient Greek word *εμπάθεια* (*empathia*), meaning “physical affection or passion” (Henry George et al., 1940). Although many studies have contributed to the comprehension of empathy, the first name that comes to mind is Carl Rogers. In the past, empathy was commonly defined as the process of understanding and feeling accurately what another individual is experiencing by placing oneself in another's position and letting the other individual know (Rogers, 1975).

Empathy has many definitions that encompass a broad range of emotional states, including caring for other people and having a desire to help them; experiencing emotions that match another person's emotions; discerning what another person is thinking or feeling (Pijnenborg et al., 2012); and making less distinct the differences between the self and the other (Hodges & Klein, 2001). Empathy is also knowing what the other person is thinking or feeling (Davis, 1983). Being empathetic means reading other individuals in an emotional way (Moller, 2000). Liew et al. (2003) defined empathy as an effective reaction caused by fear, anxiety or an expectation about what another individual feels or will feel. In the twenty-first century, empathy is frequently discussed in psychiatry and psychology and is a topic of research in the fields of clinical, social and communication psychology. Empathy is critical in psychotherapy and interpersonal relations (Dinçörek, 2004). According to Freud, empathy as a practice plays a role in understanding something strange to the self (Ünal, 1972). In addition, empathic skills facilitate effective communication in the social world; it is like an adhesive to help us to help others and deter us from hurting others (Baron-Cohen & Wheelwright, 2004). Baron-Cohen defines empathy as spontaneously and naturally tuning into the other person's thoughts and feelings. However, Badea argues that empathy is a way of understanding the feelings of others, not experiencing them. Empathy helps people to be aware of others' feelings and thoughts (Badea, 2010) and allows us to understand others' intentions, predict their actions and experience feelings triggered by their emotional experiences.

Hoffman (1991) stated that the motivation needed for moral actions depends on empathy. Putting oneself in the other's place, understanding his feelings and his experiences in every condition, is the highest level of empathy (Kirsi, 2003). Empathy includes understanding multiple perspectives on people's actions, historical events and the ability to take an empathic stance (Grant, 2001). Empathy underlines pro-social behavior; in the absence of empathy, individuals display aggressive and acquisitive behaviors while ignoring the rights or suffering of others (Marshall, 2011). Such individuals struggle to identify themselves in imaginative or real life conditions (Dewaele & Wei, 2012). Empathy lends crucial emotional heft to moral actions. For instance, higher empathy scores in nurses with higher well-being (Patricia, 2015). Empathy can also emotionally reinforce kindness, rendering helpers more persistent in aiding others.

Empathy is a conscious, intrinsic capacity that involves two main factors. There are many explanations of the multidimensional nature of empathy; however, recent research has conceptualized empathy as having cognitive and affective aspects. Cognitive empathy, in which one understands others' states of mind with the help of the imagination, can result from intentionally adopting another's psychological perspective. Emo-

tional empathy, defined as one's emotional reaction to another's emotional reaction, can be caused by observing someone's emotional state and briefly experiencing affective resonance. In the literature, affective empathy is referred to as emotional empathy (Lawrence et al., 2004). There are many elements to consider when defining empathy. For example, how do empathy and sympathy differ, if they actually do? Is empathy a cognitive or an effective response to the suffering of others?

School is a place to socialize children in a systematic, disciplined and planned manner, to get them to know each other, and to allow them to acquire empathy in order to produce collectively in society. Through the use of school resources available for the needs of individuals and groups, schools help children develop care and empathy, and learn to be interested in diverse communities with ethnic, cultural and social differences (Gay & Hanley, 1999).

An individual should be sensitive to the feelings of others and should recognize, understand and interpret these feelings to show empathy. Understand another individual's feelings before expressing one's own is the core of empathy. The degrees of teachers' empathy have been estimated to be quite high. Research has shown that all aspects of self were connected to empathy, but the most important predictor of high empathy was favorable self-estimation (Snežana & Stojiljković, 2013).

Teachers' empathy is the most important variable consistently related to positive outcomes and student learning. When students realize their teachers are trying to put themselves in their position and understand what they feel, i.e. when they notice their teachers' empathetic skill, it is likely that they will feel closer to them, trust them and be impressed by them (Kuzgun, 2000). In interpersonal communication, almost all misunderstandings and conflicts are caused by a lack of empathy of at least one party. Conflict between teachers and students were due to less effective communication, especially due to teachers' lack of empathy. The role of empathy in the communication between teachers and students and its application steps is particularly important. The way a teacher interacts with students is significant, influential, and demands meaningful preparation as pre-teachers need better models, practices, and frameworks for teaching, especially if the students represent social classes that are different from the teacher's (Sato & Lensmire, 2009). Pre-teachers must develop not only their teaching skills, but the emotional capacity required to enhance their resilience, survival and ability to innovate. System and planned education in normal university serves to socialize and be socialized, the primary purpose of which is to give students in normal university the opportunity to acquire the capacity for empathy.

Empathy is important for future teachers as it enables them to understand the needs of their pupils and, therefore, offer them adequate and high-quality attention. However, the above literature has focused on the importance of the empathy of in-service teachers, but not the understanding, investigation and training of the empathy of pre-service teachers. Especially in the context of strengthening the abilities of rural teachers, it is imperative to investigate and cultivate the empathy of rural directional normal students. This study aimed to answer the following questions:

- (1) How to evaluate empathy levels in pre-service teachers?

(2) Which factors affect the empathy of rural orientation pre-service teachers? For example, are there the differences by gender or other factors?

Methods

Participants

The sample consisted of 300 undergraduate participants enrolled in a public university in China. Surveys were distributed in person to participants, filled out at the participant's convenience, and returned anonymously to the researchers. Of these, 13 were dropped from data analysis because of missing or incomplete data, leaving a total of 287 participants, 66% of the participants were female. Fifty nine percent of the students were from the normal university, and 41% were non-normal undergraduates. Twenty eight percent of students were from the liberal arts, and 72% from sciences. Distribution of the subjects was divided by parenting style, 75% of students were from authoritative parenting, and 25% from permissive parenting. The students of introversion, which measures Eysenck's personality inventory, were 114, and the students of extroversion were 173.

Research Tools

Participants completed the Empathy Quotient Scale. The Interpersonal Reactivity Index (IRI) was first compiled by Davis (1983). Based on previous research on empathy, the Chinese version of the IRI (IRI-C) was revised by Zhan and Wu (1987). The IRI-C scale included 22 statements that measured four dimensions: Personal Distress (PD; 5 questions), which measures self-centered anxiety and discomfort about the plight of others in a stressful interpersonal context; Perspective Taking (PT; 5 questions), which measures individuals' tendencies to adopt others' mental views. Empathic Concern (EC; 6 questions), which measures other-centered empathy and the behavioral tendency to focus on the less fortunate. Fantasy (FS; 6 questions) measures the emotion and behaviors of characters in fictional works such as novels, TV, movies, and plays through imagination. The items were ranked on a 5-point Likert scale (from 0: "does not describe me at all" to 4 "describes me very well"). Negative questions were graded in reverse. Higher total score indicates stronger empathy ability.

The internal consistency coefficient was 0.53-0.78, and retest reliability was 0.56-0.82. Thus, IRI-C has good reliability and validity in application to Chinese people (Fengfeng Zhang, et al., 2010).

Statistical Analysis

Following data collection, the researchers went on to conduct the appropriate statistical analyses in order to examine whether pre-service gender, personality or other factors impact the candidate teachers and quality of teacher education in rural areas.

In all cases, statistical significance was set at $p < 0.05$. The Statistical Package for the Social Sciences (SPSS) software (version 17.0) was used for calculating these statistics.

Results

Descriptive Statistical Analysis Results for the Empathy Quotient Scale and Sub-Factors

The participants' mean scores on empathy and four sub-factors (**Table 1**) indicate that pre-service teachers' empathy scores were above average except in the PD category, and they evaluated themselves positively. They made higher self-estimation both of EC (2.47) and PT (2.53). In addition, the lowest sub-factor score was PD and the highest sub-factor score was PT. These high estimations of all dimensions of empathy are understandable because pre-teachers are educated through learning theory in normal university and teaching practice for more than two months in primary school. They are continually involved in pre-service training that contributes to improving their general personal competences.

Analysis of the Difference in Empathy with Several Variables

The first research question investigated whether there was a difference between the scores of males and females on the empathy and sub-factor scales. The results of this comparison are shown in **Table 2**, which reveals that there were significant differences between empathy scores for males and females, as well as in sub-factor scores, except for FS, PD and PT.

The females' empathy EC scores ($M = 2.87$) were significantly higher than males ($M = 2.54$), indicating that the females' emotional ability and reactions were more intense. A significant difference in the empathy concern ($t = 5.01$, $p < 0.001$) was present between females and males, and showed a middle effect size ($d = 0.59$). These results indicate that the sub-dimensions of empathy allow us to differentiate between men and women, suggesting empathy concern dimensions are more involved in the observed gender differences.

Table 3 shows that there is no significant difference between scores of general undergraduate and normal college students on empathy and sub-factors scores, except for empathy concern ($t = -1.94$, $p < 0.05$). However, in terms of empathy, the scores of normal college students' average scores are higher than undergraduates in non-normal college.

Table 4 shows category differences in empathy scores of pre-service teachers. PD is significantly different between students of the liberal arts and students of sciences. Interestingly, students in the liberal arts EC score are lower than the sciences in personal grief.

Table 1. Descriptive Analysis Results for IRI-C and Four Sub-Factors (n=287).

Variable	Max	Min	Mean	SD
Empathy	4	0	2.17	0.41
Personal Distress	4	0	1.51	0.84
Empathy Concern	4	0	2.47	0.74
Fantasy	4	0	2.07	0.64
Perspective Taking	4	1	2.53	0.63

Table 2. The t-Test Scores of Gender on the Empathy and Its Sub-Factors.

Variables	Gender		t	Cohen's d
	Female (n=189)	Male (n=98)		
Empathy	2.29±0.40	2.16±0.36	2.91**	0.34
Personal Distress	1.58±0.55	1.51±0.58	1.04	0.13
Empathy Concern	2.87±0.58	2.54±0.53	5.01***	0.59
Fantasy	2.26±0.65	2.15±0.63	1.45	0.17
Perspective Taking	2.42±0.71	2.45±0.52	-0.41	-0.05

*p < 0.05, ** p < 0.01, *** p < 0.001

Table 3. Comparison between Students with Normal and Non-Normal University.

Variables	Non-normal College Students (n=117)	Normal College Students (N=170)	t	Cohen's d
Empathy	2.26±0.47	2.34±0.44	-1.47	-0.18
Personal Distress	1.75±0.89	1.84±0.85	-0.87	-0.10
Empathy Concern	2.58±0.69	2.72±0.51	-1.94*	-0.24
Fantasy	2.89±0.09	2.89±0.73	0.01	0.002
Perspective Taking	2.17±0.79	2.28±0.75	-1.19	-0.14

*p < 0.05

Table 5 shows significant differences in empathy score ($t = 4.00$, $p < 0.001$) and its sub-factors except for PD. At the same time, in each empathy dimension of EC, FS

and PT, scores of authoritative style were higher than permissive style. It is therefore plausible that the pattern of family education and interaction is very important to develop the pre-teacher's empathy ability and skills. Put another way, the empathy ability of child may be modulated by emotional intelligence of their parents via the family's atmosphere feedback.

The researchers then turned to an analysis of empathy between introverted and extroverted student teachers. **Table 6** shows no significant difference between scores of extroverted students and introverted students on empathy and its sub-factors except for PD ($t = -1.74, p < 0.05$). However, the average score of introverted pre-service teachers were higher than extroverted students except for PT; the average score of PT for extraversion was higher than for introversion.

Discussion

These findings show that the empathy ability of the pre-service teacher group is generally high, with average scores higher than two points. Pre-service teachers in normal university are stronger in the dimension of empathy concerns. First of all, they have systematically studied the professional knowledge of education and psychology, and have learned emotional theory and empathy skills. Therefore, their empathy concerns are relatively good, which is related to the fact that pre-service teachers likely have the will to become a teacher, and want to engage in education. Therefore, the pre-service teacher group will have conscious or unconscious daily interactions with people. It shows that teachers are good at listening, good at focusing and good at being empathetic. The results also show that the pre-service teacher performs less well on personal distress. Pre-service teachers are beginning with teaching in school, although they may have some opportunities to reach out to the child, there may be fewer chances for in-depth contact and understanding, and thus less attention to the child's pain, anxiety and discomfort, in this dimension.

Empathy is universal in a public citizen's life, especially within the teaching profession. The high empathy ability of pre-service teachers is likely due to their enthusiasm and less emotional exhaustion, probably due to the fact that trainee teachers are excited about primary school. This results exposed experience of the pre-service teacher, which may be an active empathy or a passive empathy. In-service teachers in the middle school scored the highest on empathy concern and their total empathy scores were higher than those of pre-service teachers. Previous studies have clearly shown that cultivating the empathic ability of pre-service teachers, especially empathic concern, can greatly improve emotional ability and prompt new teachers to adapt to work more quickly.

Many studies have found females to have greater emotional ability than males, or at least be more emotionally expressive (Kring & Gordon, 1998). Consistent with these studies, a study by Barış (2016), revealed that there was significant difference between scores of males and females on the empathy level of the emotional reactivity sub-factor scores. In this study, empathy of females and males were significantly different ($t = 2.91, p < 0.01$). In contrast, the in-service teachers in middle school have a similar con-

Table 4. Colleges' Category Analysis of the Empathy.

Variables	Major		t	Cohen's d
	Liberal Arts Students (n=81)	Sciences Students (n=207)		
Empathy	2.19±0.42	2.26±0.40	-1.55	-0.17
Personal Distress	1.36±0.78	1.64±0.70	-3.25**	-0.39
Empathy Concern	2.73±0.58	2.64±0.66	1.26	0.14
Fantasy	2.15±0.65	2.24±0.62	-1.22	-0.14
Perspective Taking	2.45±0.69	2.42±0.78	0.45	0.04

** p < 0.01

Table 5. Analysis of Differences Parenting Style.

Variable	Parenting Style		t	Cohen's d
	Authoritative (n=216)	Permissive (n=71)		
Empathy	2.35 ±0.41	2.16±0.39	4.00***	0.47
Personal Distress	1.54±0.80	1.48±0.85	0.67	0.07
Empathy Concern	2.84±0.61	2.60±0.62	3.34**	0.39
Fantasy	2.31±0.69	2.15±0.62	2.11*	0.24
Perspective Taking	2.55±0.70	2.38±0.58	2.13*	0.25

*p < 0.05, ** p < 0.01, *** p < 0.001

Table 6. Analysis of Pre-Service Teacher's Introversion and Extroversion.

Variable	Extroversion (n=173)	Introversion (n=114)	t	Cohen's d
Empathy	2.26±0.36	2.33±0.47	-1.41	-0.17
Personal Distress	1.70±0.89	1.88±0.86	-1.74*	-0.21
Empathy Concern	2.35±0.86	2.50±0.68	-1.63	-0.19
Fantasy	2.64±0.54	2.71±0.78	-0.89	-0.11
Perspective Taking	2.31±0.73	2.24±0.77	0.78	0.09

*p < 0.05

clusion for empathy abilities ($t = 3.65, p < 0.001$) in that the female teachers' empathy was higher more than that of male teachers (Guan, 2011). Due to these findings, possible effects of variables other than age and gender on emotional reactivity as a sub-factor of the Empathy Quotient Scale should be investigated (Sharma, 2014).

No difference was observed in empathy ability between countryside-orienting normal university students and normal university students. Because the teacher's education program has been taken seriously by the state, teaching has become an enviable profession. With the popularization of education, the gap between the education levels of normal and non-normal students is less, and opening of the teacher qualification examination has attracted more non-normal students. More importantly, the construction of online courses, such as MOOCs and micro-courses, has led to the rapid development of teacher education. Although the gap between teachers from different backgrounds is becoming smaller, normal students still have unique professional advantages, namely, educational internships. In the real-school situation, pre-service teachers learn to pay close attention to and empathize with the students, so as to truly cultivate their empathy ability. Through the practice of this educational internship, difference in empathy between pre-service teacher and non-teachers is generated.

Analysis of the causes of professional category differences in pre-service teacher' empathy show no difference in the empathy ability of the professional categories of pre-service teacher; the division of liberal arts and science has no effect on empathy ability ($p > 0.05$). However, there is a significant difference in the personal distress dimension ($t = -3.24, p < 0.01$), and the average score of liberal arts students ($M = 1.36$) is lower than that of science students ($M = 1.64$). In the fantasy dimension, the average score of liberal arts students ($M = 2.15$) is lower than that of science students ($M = 2.24$), but not significantly. The average score of liberal arts students is higher than that of science students in dimensions of perspective taking and empathy concern, but not significantly.

Parenting style of authoritative or indulgence has been shown to lead to significant differences in empathy ability. Scores associated with the authoritative style for empathy and the four-dimensions are higher than indulgency style scores. There are significant differences in empathy concern ($t = 3.34, p < 0.01$), fantasy ($t = 2.11, p < 0.05$), and perspective taking ($t = 2.17, p < 0.05$). Indeed, early education and family parenting style has a great influence on people and can one's whole life. These data can be extrapolated, as parents of authoritative parenting styles give appropriate discipline through the process of raising children, and give appropriate care and guidance in terms of emotions. Whether in life or in emotion, children have free space to grow. The children of authoritative child-rearing style are more likely to be emotional, imaginative, sympathetic, concerned about others and be able to adopt others' points of view. Parents who are indulgent pay less attention to discipline in the process of raising children. They want to control their children's lives but at the same time, they neglect to care for their children and provide the correct emotional guidance and education. Such children are more likely to be emotionally selfish, find it difficult to sympathize with others and tend to ignore the opinions of others. According to previous research, the ultimate

mechanisms that drive empathic behaviors evolved in conjunction with parental care to increase survival of close-knit social groups (Trivers, 1971).

Analysis of empathy between introverted and extroverted pre-service teachers showed that all have high scores. Introversion and extroversion are easily associated with emotions. For example, introversion can be understood as emotional inactivity, while extroversion is understood as more active emotions. These results showed that students' average empathy scores with extroverted personality ($M = 2.26$) were lower than those with introversion ($M = 2.33$), and there was a significant difference in the PD sub-dimension ($t = -1.71, p < 0.05$). Consistent with previous research, introversion and extroversion have significant regulating effects between empathy and helpfulness (Yan, 2012).

Conclusions and Future Directions

This study demonstrated that empathy of pre-service teachers shows a significant difference by gender and parenting style and found that pre-service teachers' empathy concern is significantly different by gender, the classification of normal university students and parenting style. It also showed that personal distress is affected by personality test of EPQ and Faculty of the liberal arts and sciences.

Empathy is an important foundation for building good relationships between teachers and students. It is very difficult to turn empathy into language, as language is only a part of empathy. A person might believe they are much more empathetic than they really are. This is because someone with poor empathy is often the last person to realize they have poor empathy. More empathy gestures need to be experienced in practice by pre-teachers. With the cultivation of empathy, rural pre-service teachers can deepen their understanding through the activity of positive emotions.

Future research in the emotional ability field of pre-service could benefit from guidelines developed to improve protocols for education and intervention. For instance, a strategy to revitalize the countryside, which includes an extension specifically for emotional and psychological interventions, would be beneficial. Pre-service teachers will carry out social practice activities and enhance empathy through experience. Rural teachers develop an empathic ability to resist pressure. Then, the talented teachers with emotional intelligence love rural education and love rural students, according to local conditions education.

In addition, it would be beneficial to strengthen the training of empathy ability for rural orientation pre-service teachers. For example, through imitating dialogue: "I feel you are a bit aggrieved, is it because the teacher just accused you? Was it because you did your homework incorrectly? Are you a bit depressed? Are you worried that the teacher blames you?"

Although research on the effects of emotional education is still in its infancy, our systematic assessment of study suggested that three specific method improvements could be made: (1) Focus on cultivating teachers' ability of empathy, enhancing communication between teachers and students, and promoting a harmonious relationship

between teachers and students; (2) Train teachers to use empathy language and behavior, and express empathy and regulate emotions in a timely and appropriate manner; and finally, (3) Encourage pre-service teachers to express their understanding to students, respect students and communicate with them actively, respect students and achieve the happiness of a teachers' career.

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