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**GENERATIONAL AND SEX DIFFERENCES IN RELATION TO EMPATHY
AMONG PRE-GRADUATE TEACHERS**

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Abstract

Insufficient attention is paid to the issue of empathy in the context of undergraduate teacher training. Nevertheless, empathy is one of the important skills that facilitates and deepens interpersonal relationships and strengthens interpersonal interactions. Empathy as a psychological construct consists of an affective (feeling an adequate emotion triggered by the emotions of others), cognitive (the ability to understand or predict what the other person might think, feel, do) and a mixed component (cognitive and affective). In this paper the authors focused on the differences in the degree of empathy based on various generations (X, Y, and Z generations) and sex. The data were obtained by means of the Empathy Quotient (EQ) approach on a sample of 313 pre-service teachers. The sample comprises 115 men and 196 women. The X generation was represented by 67, the Y generation by 104, and the Z generation by 140 students of teaching professions. The ANOVA test (using Welch's correction) suggested that the level of empathy differed significantly in each age group of respondents, $F(2, 177.048) = 99.131, p < .001$. A post-hoc analysis (Games-Howell) confirmed significant differences among all groups ($p < .001$) with a gradually increasing degree of empathy. An independent t test suggested that the degree of empathy varied considerably across the groups of respondents by sex; women had significantly higher empathy scores than men, $t(309) = -9.524, p < .001$.

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1. Introduction

The origin of the word empathy dates back to the 1880s, when a German psychologist Theodore Lipps coined the term ‘Einfühlung’ to describe the emotional comprehension of another’s feelings (Zahavi & RoCHAT, 2015). The English term was then adapted by Edward B. Titchener (1909). However, investigating this construct dates back to the very beginnings of philosophical thinking. Despite the extensive research history, the term has so far not been clearly defined or consolidated (Decety & Jackson, 2004; Cuff, Brown, Taylor & Howat, 2016).

In contemporary psychology, empathy represents one of the important constructs, which is very closely linked with the ability of an individual to understand other people, communicate with them, and maintain satisfactory interpersonal relationships. The ability to empathize with other people and understand their opinions and feelings has a considerable influence not only on social orientation and adaptation, but also on regulating and directing one’s own conduct. It is important for creating and maintaining close relationships¹. The ability of empathy depends on the current status of the individual (anxiety, tension and stress significantly reduce the ability to empathize with others, perceive their feelings and understand them), individual motivation, experience, and whether or how much the person feels responsible towards others (Vreeke, van der Mark, 2003; Singer & Klimecki, 2014; Vágnerová, 2016).

1.1. Theoretical concepts of empathy

In terms of the theoretical framework of the concept of empathy, the following two concepts are usually mentioned: cognitive (perspective taking) and emotional (sharing emotions) concepts of empathy. Some professionals emphasize only one aspect, while other experts focus on both. Cognitive empathy represents the knowledge and understanding of the thoughts and emotions of other people, without necessarily feeling the same (similar to the ‘theory of mind’). Emotional empathy is a tendency to feel the same emotions as other people (Rueckert, Branch, Doan, 2011). Numerous neurological studies have shown that each of the concepts mentioned above is related to a different part of the brain (Cuff, et al., 2016). However, regarding their extensive interaction, the separation of the two theories was rejected (Baron-Cohen & Wheelwright, 2004, Singer, 2006). In this context, Strayer (1987, in Cuff, et al., 2016) states that the affective component is the content of empathy, while the cognitive component is a process that forms this content. The multidimensional concept of empathy, which is a combination of the cognitive and affective components, was developed by M. H. Davis (1996). His concept includes the following four basic components: a) perspective taking, b) empathic concern, c) fantasy and d) personal distress. This paper is also based on the multidimensional concept of empathy. It is assumed that empathy as a psychological construct consists of an affective, cognitive and a mixed component (cognitive and affective; see below) (Wakabayashi, et al., 2006).

¹ In a famous novel called *To kill a Mockingbird*, one of the themes is dependent on the concept of empathy. In the story, Atticus Finch tries to help his children to understand people’s behaviour towards to them. ‘You never really understand a person until you consider things from his point of view – until you climb into his skin and walk around in it’ (Lee, 1960, p. 24).

1.2. Empathy in the teaching profession

Empathy is often referred to as a very **important quality of teachers**, which allows adequate communication between the participants in the educational process. Teachers' emotional competences are necessary for successful performance of the teaching profession together with overall educational competences, competence related to the contents of the curriculum and communicative competence (Stojiljković et al., 2012; Stojiljković et al., 2014). Assuming that the teacher should understand the students, their way of thinking and their emotional states, it is clear that empathy is one of the key skills that enables the teacher to create a classroom atmosphere, where the students feel satisfied, free, respected and understood (Stojiljković et al., 2012; Stojiljković et al., 2014). Empathy also plays an important role in the development of moral values in children (e.g. Decety & Cowell, 2014; Ugazio, Majdandžić & Lamm, 2014).

1.3. Empathy in relation to sex and generation-based differences

Differences in the degree of empathy in relation to sex have been addressed by a number of studies. Most studies confirmed a higher degree of empathy in women (see for example Hojat, 2016; Rueckert, Branch, Doan, 2011). In this sense, the interpretations of numerous researchers should be taken into account, according to whom the differences in empathy might be caused by the general differences between men and women in their emotional response (Rueckert, Branch, Doan, 2011). Using different methods to investigate the degree of empathy in relation to sex resulted in considerably different outcomes. It turns out that sex-based differences in the degree of empathy are a function of the methods used for their assessment. In the case of self-report scales, considerable sex-based differences were observed (in favour of women); in the case of reflexive cry and self-report measures in laboratory situations, average differences were observed (again in favour of women); and finally, when the measure of empathy was either physiological or discreet (hidden) observation of non-verbal reactions to the emotional state of others, no sex-based differences were observed (Eisenberg, Lennon, 1983).

The issue of **generation-based differences in the degree of empathy** (for details see below) has not been subject to extensive research such as in the case of sex-based differences. However, some studies suggest that the Y and Z generations show lower empathy scores (Metz, 2017)². In overall terms, these generations also show a higher degree of narcissism and are more disconnected from the real world. The explanation why the representatives of these generations are less able to share the experience of others is extensive use of technologies leading to decreased functioning in the real world. At the same time, frequent use of technologies is likely to cause a decrease in a person's engagement with the self, others, and the environment, which in turn results in a lower degree of empathy and an increase in narcissism (Michalska, Kinzler & Decety, 2013; Twenge et al., 2012; Metz, 2017). According to a study by Twenge et al. (2012), generally the degree of empathy slightly decreases across generations (younger generations show a lower degree of empathy).

²Metz (2017) a priori speaks about the Y generation, but his age range of this generation (1982 to 2001) partly overlaps with the Z generation according to our classification (1995 to 2009) (cf. for example Berkup, 2014; McCrindle, 2014).

1.4. Definition of the X, Y and Z generations

Individuals from different generations differ not only in behaviour, but also in their opinions, which affect all areas of their social and personal life (Zolkifi, 2014). The X generation is defined by years 1965-1979. This generation is also called Baby Busters, Post Boomers, Slackers, or Latchkey Child (Berkup, 2014). The development of the X generation was influenced by world events such as the period of recession in the 1970s, Watergate, Vietnam war, expansion of AIDS, fall of the Berlin wall, assassination of John Lennon, rapid development of technologies (Tolbize, 2008; Srinivasan, 2012). In the territory of Czechoslovakia, the X generation was mostly affected by the Prague Spring of 1968, establishment of the federation of the Czechoslovak Socialist Republic, self-immolation of Jan Palach and other protests against occupation. The Y generation consists of individuals born between 1980 and 1994. This generation is also called Gen Y, Millennials, Generation Next, Digital Generation, Nexters, Echo Boomers, Google generation, Why Generation (McCrindle, 2014). Members of the Y generation were born into a relatively peaceful and calm environment as planned children of the X generation and Baby Boomers. The most significant world events that influenced their development include disintegration of the Soviet Union and associated political scandals, first terrorist attacks, war in the Middle East, etc. The most typical feature of this generation is technical prowess and addiction to technologies. Members of this generation have very good adaptation skills, are open to changes and are not afraid of changes. They do not like to wait and tend to be impatient. On the other hand, this generation thinks globally, especially because they were born into the process of globalization. They respect other human races, nationalities, religions, gender, cultural values and sexual orientation (Tolbize, 2008). The Z generation consists of persons born between 1995 and 2009. This generation is also known as Zeds, Zees, Bubble Wrap Kids, The New Millennials, Digital Natives, Wired Generation, Screenagers or iGen and is significantly affected by technologies such as laptops, tablets, iPhones, iPads, etc. Other influences include frequent acts of terrorism, which started on 11 September 2001 and then launched the now almost global 'war against terrorism' and general unrest between the East and the West. The Czech Z generation was significantly influenced in 2004 by joining the European Union. The Z generation is on the way to becoming the most formally educated generation of the world (McCrindle, 2014). |

2. Problem Statement

|The issue of empathy among students of teaching professions has so far not been given sufficient attention. Teachers are classified (similarly to medical staff, social workers, psychologists, etc.) as helping professions (Kvintova, Dobesova Cakirpaloglu, Szotkowski, 2017); it is assumed that these professionals have a high degree of prosocial behaviour and empathy, which form the basis of their interactions with their clients and which also represent a significant aspect of their professional efficiency. Many authors agree that the personality of helping professionals is basically their most important instrument and that empathy (as well as prosocial behaviour) has a strong influence on the structure of their personality (Grant & Kinman, 2013; Wagaman et al., 2015). The data on the degree of empathy among teachers and students of teaching professions and on further development of these competences in

the course of undergraduate preparation or professional career are still missing. We believe that this information should be obtained and subject to research investigation. |

3. Research Questions

|In the present paper, the following research questions relating to undergraduate students of teaching professions were formulated:

- What is the degree of empathy among students of teaching professions?
- What are the differences in the degree of empathy between sexes?
- What are the differences in the degree of empathy in relation to various generations (X, Y, Z)? |

4. Purpose of the Study

|The present paper is part of an extensive research study mapping the issue selected protective and risk factors in pre-service teachers. The general objective is to extend the knowledge base about the group of students of teaching professions. The main objective is to analyse the degree of empathy among students of teaching professions based on their sex and generation. It is assumed that the results of the analysis focusing on this sample might help and encourage modification of teaching approaches and methods as part of specialized psychological courses taught in faculties of education. |

5. Research Methods

|The research data were obtained by means of the standardized Empathy Quotient (EQ) questionnaire. Specifically, this was a shortened version of the original 80 item questionnaire designed by Simon Baron-Cohen. This questionnaire was developed in response to conceptual imperfections of previous empathy measuring methods. In this concept, empathy is considered a two-component construct consisting of an affective (feeling an adequate emotion triggered by the emotions of others), cognitive (the ability to understand or predict what the other person might think, feel, do) and a mixed component (cognitive and affective) (Wakabayashi, 2006). The authors of the shortened 8 item version used in the present study are Peter J. Loewen, Greg Lyle and Jennifer S. Nachshen. The answers in the questionnaire are indicated on a four-point Likert scale from 'strongly disagree' (1) to 'strongly agree' (4).

The following statistical procedures were used for data processing: descriptive statistics (frequency, relative frequency, median, standard deviation), ANOVA test, Welch's correction, Games-Howell Post-hoc analysis and independent t test; for comparison purposes with other studies, average percentiles³ of the degree of empathy in various studies were calculated. In studies⁴ which used an empathy questionnaire to monitor specific subscales rather than the overall score the total score was

³This is not a percentile position concerning the population but a percentile position in the score range in specific questionnaires.

⁴In both cases, the studies involved in the comparison used the IRI questionnaire - Interpersonal Reactivity Index (Davis, 1980; 1983).

calculated as an average of individual subscales. The data were analysed using the SPSS programme (version 22).

5.1. Research sample

The research sample consisted of 313 undergraduate students of teaching professions from the Faculty of Education, Palacký University in Olomouc. The average age of the entire sample was 27.5 years (SD=9.07). The independent variables in this paper are sex and generation. As far as sex is concerned, the sample consisted of 115 men ($\mu=27.12$; SD=9.4) and 196 women ($\mu=27.7$; SD=8.9). The X generation was represented by 67 ($\mu=42.61$; SD=4.1), the Y generation by 104 ($\mu=27.25$; SD=4.3) and the Z generation by 140 ($\mu=20.44$; SD=1.24) students of teaching professions. These were students of both full-time and combined forms of study.

5.2. Data collection and ethical principles of the research study.

Data collection was performed in the first half of 2017 in psychology courses; the students were offered active participation in the research study. The study was conducted in compliance with applicable ethical principles. The study involved adult individuals on a voluntary basis. Each participant was informed about a possibility to terminate their participation at any stage without giving a reason. The participants consented to anonymous data processing and use for scientific purposes. The test battery was administered by a person with appropriate qualification and experience in psychology.

6. Findings

During the stage of data analysis, overview tables including descriptive statistics of the Empathy Quotient (EQ) questionnaire were created; at first for the entire sample and then for the independent variables of sex and generation (X, Y, and Z; see Table 01, 02, 03).

Table 01. Descriptive statistics (entire sample)

Empathy Quotient	N	Mean	SD
All groups	313	8.66	4.63

Table 02. Descriptive statistics (sex)

Empathy Quotient	N	Mean	SD	95% Confidence Interval	
				Lower Bound	Upper Bound
Men	115	5.78	3.9	5.06	6.50
Women	196	10.35	4.18	9.76	10.94

Table 03. Descriptive statistics (Generation: X, Y, Z)

Empathy Quotient	N	Mean	SD	95% Confidence Interval	
				Lower Bound	Upper Bound
X Generation	67	13.03	3.17	12.25	13.8
Y Generation	104	9.4	4.13	8.6	10.2
Z Generation	140	6.02	3.72	5.4	6.64

6.1. What is the degree of empathy among students of teaching professions?

The first research focus was an analysis of the degree of empathy in the entire sample. The average degree of empathy in the entire sample was 8.66, which represents 54th percentile in the empathy range. To provide a better idea about the significance of the values, these results were compared with the results of other studies aimed at undergraduate students of helping professions (specifically social work, education and teacher training). Table 04 suggests that the respondents in this study show the lowest average degree of empathy. In comparison with a study by Štěrba (2015) aimed at pre-service teachers, the results are similar (54th, 60th and 62nd percentile). In comparison with a study by Mlčák and Zášková (2007) aimed at students of social work and education, more significant differences were observed (85th percentile)⁵.

Table 04. Percentile comparison of selected studies focusing on empathy in students of helping professions

Study	Research sample	Percentile
Křeménková, Kvintová (2017)	Students of teaching professions	54.12
Mlčák, Zášková (2007)	Students of social work and education	85.18
Štěrba (2015) - experimental group	Students of teaching professions	60.27
Štěrba (2015) - control group	Students of teaching professions	62.16

6.2. What are the differences in the degree of empathy between sexes?

The second research focus was the differences in the degree of empathy in relation to sex. An independent t test (see Table 05) suggests that the degree of empathy varies considerably across the groups of respondents by sex; women have significantly higher empathy scores than men, $t(309) = -9.524$, $p < .001$.

Table 05. Independent t test with equal variances for the analysis of sex-based differences in the degree of empathy

t	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval	
				Lower Bound	Upper Bound
-9.52	5.07	-4.56	0.479	-5.51	-3.62

6.3. What are the differences in the degree of empathy in relation to various generations (X, Y, Z)?

The last research focus was an analysis of the differences in the degree of empathy in relation to generation-based differences (X, Y, and Z generations). The ANOVA test (using Welch's correction) suggests that the level of empathy differs significantly in each age group of respondents, $F(2, 177.048) = 99.131$, $p < .001$. A post-hoc analysis (Games-Howell) confirmed significant differences among all groups ($p < .001$; see Table 06) with a gradually decreasing level of empathy from the X generation to the Z generation (see Table 03).

⁵It should be noted that this is an average percentile position of the entire sample, which does not reflect individual distributions (SD, etc.) of the respondents in the studies compared.

Table 06. Games-Howell post-hoc test for the analysis of generation-based differences in the degree of empathy

Age groups		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Z	Y	-3.370*	.513	.000	-4.58	-2.16
	X	-7.008*	.50	.000	-8.19	-5.83
Y	Z	3.373*	.513	.000	2.16	4.58
	X	-3.636*	.56	.000	-4.96	-2.31
X	Z	7.008*	.50	.000	5.83	8.19
	Y	3.636*	.56	.000	2.31	4.96

7. Conclusion

The present study analysed the degree of empathy among students of teaching professions. The results suggest that students of teaching professions achieve a lower degree of empathy than students of other courses (education and social work) in the category of helping professions. The result is interesting and somewhat unexpected. The relatively low percentile achieved by the students involved in this study and by the respondents in Štěrba's study (2015) is unsatisfactory regarding the significance of empathy in helping professions. From an interpretative perspective, there are several explanations: a) in terms of content, education and social work is more focused on the use of empathetic skills compared with teaching professions; b) teaching professions are generally selected by students with a lower degree of empathy; c) the design of education and social work courses is more focused on the development of empathetic skills; d) in the study by Mlčák and Zášková (2007) the research sample consisted only of women, who generally show (at least in self-report scales) a higher degree of empathy.

In this context, it should be added that available sources did not include any studies on the degree of empathy in the general population carried out in the Czech Republic. A comparison with the general population would be desirable and would help refine the actual state and the degree of empathy among students of teaching professions. A comparison with international studies or the standards of the questionnaire was not considered appropriate regarding the different socio-cultural background in various countries and their educational systems. It should also be noted that the comparison of the percentiles in the present study is indicative and cannot be considered an exact measure because the empathy curves in various questionnaires are not identical.

The differences in the degree of empathy among students of teaching professions in relation to sex were as anticipated. Women showed a higher degree of empathy than men. This is due to general differences between men and women in their emotional response (see for example Rueckert, Branch, Doan, 2011), but also the application of self-report scale in this research study because it was observed (see for example Eisenberg, Lennon, 1983) that in the case of these test instruments, women generally showed a higher degree of empathy compared with men.

Various generations differ not only in behaviour, but also in their opinions, which affect all areas of their social and personal life (Zolkifi, 2014). For this reason, it was interesting to monitor the variations

in the degree of empathy across generations (X, Y, Z). An analysis of these differences suggested a gradually lower degree of empathy in younger generations. The results of the present study confirm the outcomes of other studies (see for example Twenge et al., 2012; Metz, 2017). It can therefore be concluded that one of the fundamental characteristics of the Z generation and partially also the Y generation - frequent use of technologies and reduced functioning in the real world - is likely to decrease person's engagement with the self, others, and the environment (Twenge et al., 2012; Metz, 2017). On the other hand, other possible explanations should be mentioned as well. Perhaps the most significant aspect is the age of the respondents in various generations (see Research sample). The comparison includes individuals of various ages; their differing amount and type of experience could have considerably affected the resulting degree of empathy.

The authors of the present study believe that research on empathy aimed at helping professions (specifically the teaching profession) is desirable and could bring a number of interesting and practical findings. Following this study, it seems appropriate to use a much broader sample of respondents, to extend the test battery by using additional empathy measuring instruments, and to include other personality traits. The data collected in this study can be used particularly to extend the content of psychological courses for undergraduate teacher training by including aspects of empathy, and to include practical training of empathetic skills in psychology courses.

Limitations of the study include particularly the relatively small sample of respondents, which makes it impossible to generalize the results. Also, it should be considered whether the method used in the study is appropriate (questionnaire method with its advantages and disadvantages), including the specific choice of the EQ-8 method. Another limitation might be that the comparison of the degree of empathy in undergraduate students of teaching professions included students of identical courses (teacher training and helping professions - social work and education). It would also be desirable to perform a comparison with standards (not available for the Czech population concerning the method applied) or with studies investigating empathy in the general population. |

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