The Toronto Empathy Questionnaire: Reliability and Validity in a Nationwide Sample of Greek Teachers

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Abstract: The present study examined the Toronto Empathy Questionnaire's (TEQ) validity and reliability in a sample of 3955 Greek teachers. In order to test the internal consistency reliability, the Cronbach's alpha coefficient was used and was found satisfactory at 0.72. The sample was randomly split and an exploratory factor analysis (EFA) was conducted in the even subsample, justifying the one-factor solution, with the only discrepancy of the low loading of an item. In the odd subsample a confirmatory factor analysis (CFA) was performed to confirm the one-factor model identified by the EFA. The chi square test (χ^2) of the model was significant ($p < 0.05$), while the root mean square error of approximation (RMSEA), the comparative fit index (CFI) and the goodness of fit index (GFI) values were 0.078, 0.969 and 0.960, respectively, further supporting the model's fit. Student's *t*-tests and analysis of variance (ANOVA) showed that women, teachers with children of their own, those working full-time in public schools, those with students who needed special education, and those who had received mental health promotion training, scored higher. Additionally, multiple linear regression analysis revealed that sex, working status, having students who needed special education, and having attended mental health training courses were independently associated with TEQ score. The analyses confirmed that the Greek version of TEQ could be used for researches in Greek educators as a valid and reliable measure of teachers' empathy.

Keywords: empathy; Toronto Empathy Questionnaire; TEQ; teachers/educators; reliability; validity; Greek sample

1. Introduction

The ability to empathize can be essential for social interactions and communication, for forming and maintaining meaningful emotional relationships, and for prosocial behavior in general. Hoffman (2008) states that empathy is "the spark of human concern for others, the glue that makes social life possible" (Hoffman 2008, p. 3). Although it is not a new concept and its importance has been demonstrated in a variety of studies from different fields (psychology, education, medicine etc.) its definition remains a subject of different or even overlapping conceptual approaches. It generally refers to being able to accurately perceive the emotional state of others and it includes the consequences that this capability has on the individual (Spreng et al. 2009).

There are two components of empathy that are usually recognized as distinguishable in recent studies—an emotional one and a cognitive one (Baldner and McGinley 2014; Preston and De Waal 2002)—even though both seem to be interconnected and important for its expression (Hoffman 2008; Decety and Jackson 2004; Decety and Jackson 2006). Emotional empathy describes the emotional reaction (e.g., concern) towards another person's feelings (e.g., sadness) (Spreng et al. 2009; Eisenberg 2002; Eisenberg et al. 1997; Eisenberg et al. 2002) while it does not necessarily mean that the individual recognizes the reasons behind them on an intellectual level (Rankin et al. 2005). It involves another's emotional world and the individual's involvement into it, experiencing comparable feelings (Trommsdorff et al. 2007). Cognitive empathy, conversely, refers to the cognitive identification and understanding of another person's emotional state while not requiring the parallel emotional experience (Decety and Jackson 2004; Cox et al. 2012; Lawrence et al. 2004; Preston et al. 2007). In that context empathy is defined as a complex cognitive process of reaching conclusions about other people's thoughts and feelings, by using skills such as observation, memory, etc. (William 1993, 1997), much like in theory of mind. In conclusion, empathy includes both the emotional and the cognitive aspect, meaning the understanding of not only another person's feelings but of his or her thoughts and motives as well, while maintaining a sense of self (Decety and Jackson 2004; Decety and Jackson 2006; William 1993, 1997; Batson 2014; Batson et al. 1997). De Waal (De Waal 2008) includes a third dimension, the identification with the other adopting his or her perspective, whereas Decety and Jackson (Decety and Jackson 2004) support self-other distinction for maintaining the source of the emotion. A concept close but discernible to empathy according to some researchers (Rankin et al. 2005; De Waal 2008) and included in it according to others (Davis 1994), is *perspective taking*, which refers to the individual observing the other person's visual, auditory and situational stimuli and to understanding what he or she thinks and feels, without reacting emotionally (Rankin et al. 2005), while trying to comprehend their different perspectives and how they fit together. While this may lead to empathy it is hardly that without the emotional engagement, according to De Waal (De Waal 2008). Empathy, on the other hand, may often lead to compassion, pity and altruistic behavior (Batson 2014; De Waal 2008; Bateson 2011; Miu and Balteş 2012).

Empathy has been studied in various professional fields that involve effective communication, such as health care (Burks et al. 2012; Mohammadreza et al. 2002), sales (McBane 1995; Peterson and Limbu 2009), management (Rubina et al. 2010), and helping professions (e.g., Williams 1989; Miller et al. 1988). It has also been found to be an important trait for teachers since the relationship between teacher-student also affects the relationships between students, while enhancing the climate of the classroom and, subsequently, students' learning and academic achievements (Barr 2011; Baker 2006; Barr 2013; Birch and Ladd 1997; Hamre and Pianta 2005; Hattie 2009; Hughes et al. 2008; Liew et al. 2010; Luckner and Pianta 2011; Roorda et al. 2011). When students feel safe, welcome, at ease, supported and understood, then they can fully engage in school activities and progress in educational accomplishments (Roorda et al. 2011; Wentzel 1997; Tettegah and Anderson 2007; Raufelder et al. 2016; Demetriou and Wilson 2009; Demetriou et al. 2009; Ladd et al. 2000; Pianta and Stuhlman 2004), a fact to be taken into consideration for all educational levels. Teachers' empathy has been researched mainly regarding relations with their students and the latter's school performance (Barr 2011; Baker 2006; Barr 2013; Birch and Ladd 1997; Hamre and Pianta 2005; Hattie 2009; Hughes et al. 2008; Liew et al. 2010; Luckner and Pianta 2011; Roorda et al. 2011; Wentzel 1997; Tettegah and Anderson 2007; Raufelder et al. 2016; Demetriou and Wilson 2009; Demetriou et al. 2009; Ladd et al. 2000; Pianta and Stuhlman 2004). However, there seems to be no relevant research regarding Greek educators up to date. There has not been any empathy measure created or adapted for use in the Greek schools' teacher population either.

1.1. Measures of Empathy

Existing measures of empathy present differences in the conceptualization of empathy, in how many factors or subscales they include, and in the population they are targeted for. One of the

first measures which was later doubted by Cross and Sharpley for its psychometric properties (Cross and Sharpley 1982) and by Davis who argued that it was rather a social skills assessment tool (Davis 1994), was the Hogan Empathy Scale (HES) (Hogan 1969) which consists of 64 items and supports a single factor model. Mehrabian and Epstein included more factors in the 7-dimension Questionnaire Measure of Emotional Empathy (QMEE) in 1972 (Mehrabian and Epstein 1972), which, quite later, was revised by its first author and named Balanced Emotional Empathy Scale (BEES) (Mehrabian 1996). Davis's Interpersonal Reactivity Index (IRI) (Davis 1983) also included more factors and consisted of 4 subscales: Perspective Taking, Fantasy, Empathetic Concern and Personal Distress. The first two subscales mirror the emotional and cognitive dimensions of empathy, while the two latter are not included in Baldner's, Conrad's, and McGinley's conceptualization of empathy (Baldner and McGinley 2014).

Some recent and well-received measures of empathy are the Empathy Quotient (EQ) (Baron-Cohen and Wheelwright 2004), which assesses both the emotional and the cognitive dimension of a person's perceptions about his or her empathy and was designed to measure empathy as a single factor, the Basic Empathy Scale (BES) (Jolliffe and Farrington 2006), which is intended for use in young people and adolescents and measures both dimensions of empathy, and its adaptation for adults, the Basic Empathy Scale in Adults (BES-A), which consists of three factors: emotional contagion, cognitive empathy and emotional disconnection (Carré et al. 2013).

1.2. Toronto Empathy Questionnaire

The Toronto Empathy Questionnaire was constructed by Spreng, McKinnon, Mar and Levine (Spreng et al. 2009) in an effort to create a self-report measure to efficiently and reliably assess empathy as an emotional process, taking into account the difficulty of an unambiguous definition and the common ground between the different concepts. The TEQ manufacturers aimed to create a tool to assess one's empathy as a central process on the broadest level (Spreng et al. 2009), which current self-report measures of empathy fail to achieve due to their great heterogeneity (William 1997), although they note that a multifaceted measure may be preferable in some situations. Through exploratory factor analysis, they identified a group of highly related items from across many measures, in order to construct a unidimensional factor of empathy (Spreng et al. 2009). Its construct validity has been demonstrated through associations with other measures of empathy (e.g., positive correlation with the EQ $r = 0.80$, $p < 0.001$) or similar concepts, such as interpersonal sensitivity and social comprehension. Its internal consistency was found high, ranging from $\alpha = 0.85$ to $\alpha = 0.87$, as well as its test-retest reliability at $r = 0.81$, $p < 0.001$ (Spreng et al. 2009).

The TEQ has been used in studies conducted in a number of different countries, such as Canada (Cusi et al. 2011; Lamothe et al. 2014; Parlar et al. 2014), United Kingdom (Brewer and Kerslake 2015; Robinson and Wright 2013), USA (Baldner and McGinley 2014), France (Lelorain et al. 2013), Turkey (Celik et al. 2013; Totan et al. 2012), Romania (Miu and Balteş 2012; Balteş and Miu 2014) and Trinidad and Tobago (Youssef et al. 2014). It has proven to be a reliable measure of empathy for different age groups with satisfactory psychometric properties: adolescents (Brewer and Kerslake 2015), university students (Baldner and McGinley 2014; Celik et al. 2013; Totan et al. 2012; Youssef et al. 2014) and adults (Cusi et al. 2011; Lamothe et al. 2014; Parlar et al. 2014; Robinson and Wright 2013; Lelorain et al. 2013). The TEQ has also been used in clinical populations assessing the empathetic responding of adults with major depressive disorder (Cusi et al. 2011) and post-traumatic stress disorder (Parlar et al. 2014), and in individuals who experienced crisis episodes (Robinson and Wright 2013). In two recent studies TEQ was chosen to investigate how empathy influences music-induced emotions (Miu and Balteş 2012; Balteş and Miu 2014), while in two others it was used to research the empathetic concern of general practitioners (physicians) (Lamothe et al. 2014; Lelorain et al. 2013). To our knowledge, the TEQ has not been used in educators' populations so far.

Regarding the validation of TEQ in different languages, there are very few studies available; we were able to identify two such studies: the one of Totan et al. on university students in Turkey

(Totan et al. 2012) and the research of Kim and Han on undergraduate and graduate students in Korea (Han 2016). Both corroborated the psychometric properties of TEQ and offered support for the single factor model of the TEQ according to the exploratory factor analysis. The present study aims to translate the Toronto Empathy Questionnaire (Spreng et al. 2009) and investigate the reliability and construct validity of the translated version in Greek teachers.

2. Materials and Methods

2.1. Procedure

The research was conducted from December 2015 to the end of January 2016. The Scientific and Ethics committee of the Department of Early Childhood Education of the University of Ioannina approved the conduct of the survey. The study questionnaire was anonymous and it was posted for several days on the Panhellenic School Network which is the official Greek site for schools and educators to which 99.98% of elementary and secondary schools are linked (www.sch.gr), on various official sites of Greek schools' teachers' associations (i.e., www.pekade.gr, www.p-e-f.gr, www.inital.gr, etc.) and on all the important and most visited educational sites (i.e., www.specialeducation.gr, www.alfavita.gr, www.esos.gr, www.ipaideia.gr, www.omep.gr,etc.). It would appear after clicking on a banner's link asking, "*Are you an educator? Would you like to know your level of empathy*?" following an informative page on the study and on the questionnaire structure. Participants' consent was granted by choosing to complete the questionnaire that contained questions concerning personal and job-related information and the TEQ. Upon completion, the participants would receive their scores, together with information regarding empathy.

2.2. Participants

Data from 3955 subjects (1108 men and 2847 women) were analyzed. Sample characteristics are presented in Table 1. Most of them (72.0%) were female with 43.3 (SD = 8.9) years of mean age. Two out of three were married (66.4%) and had children (66.7%), while 35.4% of them held a Masters or a PhD. Additionally, the majority worked in the public sector (84.6%), teaching full time (88.1%) in a permanent position (86.6%), with 15.5 (SD = 8.4)mean teaching years. Only 12.9% of the participants were school principals and the mean years of having this position was 7.2 (SD = 5.6). The mean number of students in the participants' class was 18.2 (SD = 9.6). Moreover, 52.4% of the teachers had students who needed special education according to a specialist, whereas 70.3% claimed to have undiagnosed students in need of special education in their class and 63.8% reported that they had students with difficulties in speaking or language apprehension. Also, 20.6% of the sample reported having attended training in mental health promotion.

Table 1. Sample characteristics.

	N (%)
Sex	
Men	1108 (28.0)
Women	2847 (72.0)
Age, mean (SD)	43.3 (8.9)
Married	
No	1329 (33.6)
Yes	2626 (66.4)
Children	
No	1317 (33.3)
Yes	2638 (66.7)

Table 1. *Cont.*

	N (%)
Highest degree	
Bachelor	2552 (64.5)
Masters	1216 (30.7)
PhD	187 (4.7)
Years of teaching, mean (SD)	15.5 (8.4)
Number of residents in the area of teaching	
At most 1999	442 (11.2)
2000 to 9999	833 (21.1)
10,000 to 250,000	1916 (48.4)
More than 250,000	764 (19.3)
School	
Public	3344 (84.6)
Private	611 (15.4)
Working status	
Part time	471 (11.9)
Full time	3484 (88.1)
In case of working in public sector:	
Substitute teacher	437 (13.4)
Permanent teacher	2833 (86.6)
Principal	
No	3443 (87.1)
Yes	512 (12.9)
Years of serving as principal, mean (SD)	7.2 (5.6)
Number of students in class, mean (SD)	18.2 (9.6)
Students in need of special education (according to a specialist)	
No	1881 (47.6)
Yes	2074 (52.4)
Students in need of special education (according to own opinion)	
No	1174 (29.7)
Yes	2781 (70.3)
Students with difficulties in speaking or apprehension	
No	1431 (36.2)
Yes	2524 (63.8)
If yes, how many, median (IQR)	2 (2–4)
Having received training on mental health promotion	
No	3141(79.4)
Yes	814(20.6)

2.3. Measures

2.3.1. Empathy

The Toronto Empathy Questionnaire (TEQ) (Spreng et al. 2009) was chosen to measure sample teachers' empathy. It consists of 16 items that are scored on a 5-point Likert scale, as follows: 0 = Never, 1 = Rarely, 2 = Sometimes, 3 = Often, 4 = Always. It covers a broad range of typical characteristics associated with the emotional dimension of empathy. Its questions include emotional contagion (e.g.,

"*When someone else is feeling excited, I tend to get excited too*"), emotion comprehension (e.g., "*I can tell when others are sad even when they do not say anything*"), sympathetic physiological arousal (e.g., "*It upsets me to see someone being treated disrespectfully*") and con-specific altruism (e.g., "*When I see someone being taken advantage of, I feel kind of protective towards him/her*"). Eight items (2, 4, 7, 10, 11, 12, 14, 15) are reversed. Scores are summed to derive total for the TEQ, which can range from 0 to 64, with high scores indicating higher levels of empathy.

2.3.2. Translation

The TEQ was translated into the Greek language from the original questionnaire following translation protocols (Solano-Flores et al. 2009; Van de Vijver and Hambleton 1996). Two professional translators, native speakers of the Greek language (i.e., target) and fluent in the English language (i.e., source) proceeded with independent forward translations into the target language. A preliminary Greek version was developed which was then translated back into the original language by another professional translator. These two English versions, the back-translation and the original scale, were then compared; if any discrepancies were found between the two, adjustments were made to produce the final Greek version presented in the Appendix A.

2.3.3. Demographic Information

In a cross sectional study design personal data were collected, such as age, sex, family status, number of children, educational level, and having received training in mental health promotion. Work-related information was also collected, such as the type of educational setting (private or public), the years of teaching experience, the working status (part-time or full-time), the permanence of position, the number of students in class, the number of students in need of special education etc.

3. Statistical Analysis

Continuous variables are presented with mean and standard deviation (SD). Qualitative variables are presented with absolute and relative frequencies. The sample was randomly split into two datasets of approximately equal size. Data of the even subsample (N = 1997) were used to carry out an exploratory factor analysis in order to evaluate construct validity of the questionnaire. The cut-off point for factor loadings was 0.40. A confirmatory factor analysis (CFA) with maximum likelihood procedure was performed in the odd subsample (N = 1958) in order to confirm the model identified from the EFA. The variance of the latent constructs was fixed at one during parameter estimation. The fit of the CFA model was assessed using the chi square (χ^2), the comparative fit index (CFI), the goodness of fit index (GFI) and the root mean square error of approximation (RMSEA) (Mueller 2000). For the CFI and GFI indices, values close to or greater than 0.95 are taken to reflect a good fit to the data (Hu and Bentler 1999). RMSEA values of less than 0.05 indicate a good fit and values as high as 0.08 indicate a reasonable fit (Hu and Bentler 1999). Also, a non-significant chi square statistic indicates a good fit, but chi square is usually sensitive to sample sizes and usually significant for large sample sizes (Mueller 2000). The internal consistency of the questionnaire was analyzed with Cronbach's α. Reliability equal to or greater than 0.70 was considered acceptable. Multiple linear regression analyses in a stepwise method (*p* for removal was set at 0.1 and *p* for entry was set at 0.05) was performed in order to find variables independently associated with TEQ total score. All demographics and job related characteristics were added in the initial regression model. Regressions coefficients with their standard errors were computed from the results of the regression analyses. Also, coefficient of determination (R^2) was reported as a measure of variation that is explained by the model. *P* values reported are two-tailed. Statistical significant level was set at 0.05 and analysis was conducted using SPSS and AMOS (SPSS, Chicago, IL, USA) Statistical Software.

4. Results

Descriptive statistics for the TEQ items are shown in Table 2. The higher median value was 4 and was found for the items 3, 5, 7, 12, 14, 15, and 16.

Table 2. Descriptive statistics for the TEQ items.

	Mean	SD	Median	Percentile 25	Percentile 75
1. When someone else is feeling excited, I tend to get excited too.	2.5	0.8	3	2	3
2. Other people's misfortunes do not disturb me a great deal.	2.6	1.2	3	2	4
3. It upsets me to see someone being treated disrespectfully.	3.6	0.7	4	3	4
4. I remain unaffected when someone close to me is happy.	3.3	0.8	3	3	4
5. I enjoy making other people feel better.	3.6	0.6	4	3	4
6. I have tender, concerned feelings for people less fortunate than me.	3.2	0.8	3	3	4
7. When a friend starts to talk about his\her problems, I try to steer the conversation towards something else.	3.5	0.7	4	3	4
8. I can tell when others are sad even when they do not say anything.	3.1	0.8	3	3	4
9. I find that I am "in tune" with other people's moods.	2.6	0.7	3	2	3
10. I do not feel sympathy for people who cause their own serious illnesses.	2.9	1	3	2	4
11. I become irritated when someone cries.	2.9	1	3	2	4
12. I am not really interested in how other people feel.	3.5	0.8	4	3	4
13. I get a strong urge to help when I see someone who is upset.	3.3	0.8	3	3	4
14. When I see someone being treated unfairly, I do not feel very much pity for them.	3.5	0.9	4	3	4
15. I find it silly for people to cry out of happiness.	3.6	0.7	4	3	4
16. When I see someone being taken advantage of, I feel kind of protective towards him\her.	3.4	0.8	4	3	4

Note: Items in italics are reversed; percentiles indicate the score below which the given percentage of sample may be found.

A principal components analysis was performed in the even subsample. The EFA performed by restricting it to a single factor, produced a Kaiser Meier Olkin (KMO) coefficient equal to 0.83 and a Barlett χ^2 value equal to 7321.5 ($p < 0.001$). The proportion of total variance explained was 20.6%. The factor loading of the item 11 was equal to 0.20 and below the criterion of 0.40. When the corrected item total correlations were examined, the value of item 11 was low and equal to 0.15. Therefore, the aforementioned item was omitted from the questionnaire. The results of the EFA performed without the item 11, showed a Kaiser Meier Olkin (KMO) coefficient equal to 0.83 and a Barlett χ^2 value equal to 7098.5 ($p < 0.001$). The proportion of total variance explained was 22%. Factor loadings (Table 3) ranged from 0.40 (item 8 and item 14) to 0.67 (item 13). Corrected item-total correlations and Cronbach's alpha if an item was deleted are presented in Table 3. Internal consistency reliability for the TEQ in the total sample was accepted with Cronbach's alpha equal to 0.72. Afterwards, a CFA was conducted in the odd subsample to estimate if the model fitted the data well. The CFA indicated an adequate fit of the one-factor model (RMSEA = 0.078, CFI = 0.969 and GFI = 0.960). None of the item cross loadings exceeded the item loadings on the intended latent construct. The chi-square test of the model was significant ($p < 0.05$). Cronbach's alpha was equal to 0.73 and 0.71 for the even and the odd subsample, respectively.

Table 3. Factor loadings from the results of exploratory factor analysis, inter-item correlation coefficients and internal consistency reliability of the *TEQ* questionnaire.

	Factor Loading	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. When someone else is feeling excited, I tend to get excited too.	0.45	0.31	0.71
2. Other people's misfortunes do not disturb me a great deal.	−0.41	0.30	0.73
3. It upsets me to see someone being treated disrespectfully.	0.42	0.28	0.71
4. I remain unaffected when someone close to me is happy.	−0.46	0.36	0.70
5. I enjoy making other people feel better.	0.59	0.40	0.70
6. I have tender, concerned feelings for people less fortunate than me.	0.61	0.43	0.69
7. When a friend starts to talk about his\her problems, I try to steer the conversation towards something else.	−0.42	0.30	0.71
8. I can tell when others are sad even when they do not say anything.	0.40	0.24	0.71
9. I find that I am "in tune" with other people's moods.	0.50	0.34	0.70
10. I do not feel sympathy for people who cause their own serious illnesses.	−0.41	0.30	0.71
12. I am not really interested in how other people feel.	−0.50	0.40	0.70
13. I get a strong urge to help when I see someone who is upset.	0.67	0.48	0.69
14. When I see someone being treated unfairly, I do not feel very much pity for them.	−0.40	0.28	0.71
15. I find it silly for people to cry out of happiness.	−0.43	0.32	0.71
16. When I see someone being taken advantage of, I feel kind of protective towards him \her.	0.50	0.36	0.70

The mean TEQ score was 3.2 (SD = 0.4).

When multiple regression analysis was performed in a stepwise method, it was found that sex, working status, the presence of students in need of special education and mental health promotion training were independently associated with TEQ score (Table 4). The R^2 of the model was equal to 0.05. Specifically, greater scores were found in women, in those that worked full time, in those who had students in need of special education in their class and in those who had received training in mental health promotion.

Table 4. Results from multiple linear regression analysis in a stepwise method with the TEQ score as the dependent variable (N = 3955).

	β (SE)	*p*
Sex		
Men, reference		
Women	0.16 (0.01)	<0.001
Working status		
Part time, reference		
Full time	0.04 (0.02)	0.049
Students in need of special education (according to own opinion)		
No, reference		
Yes	0.03 (0.01)	0.017
Having received training in mental health promotion		
No, reference		
Yes	0.05 (0.01)	<0.001

Regression coefficient (Standard Error).

5. Discussion

Empathy has been researched extensively for many decades and holds a continued interest in a variety of different fields, even though there are diverse conceptualizations and, consequently, definitions (Baldner and McGinley 2014). The main purpose of the present study was to investigate the Toronto Empathy Questionnaire (Spreng et al. 2009) translated version's reliability and construct validity, in Greek teachers. Firstly, the EFA performed in the even subsample was restricted to one factor that explained 20.6% of the variance. Item 11 ("I become irritated when someone cries") loaded below the criterion of 0.40, even when the corrected item-total correlations were examined; therefore it was excluded from the questionnaire. The EFA without the item 11 accounted for 22% of the variance. Such exclusions can sometimes be found in validations of measures in other languages or in other groups (e.g., Ypofanti et al. 2015; Egan et al. 2016).

Factor loadings ranged from 0.40 to 0.67, a finding in accordance with the factor loadings of the original questionnaire (Spreng et al. 2009). The confirmatory factor analysis performed in the odd subsample indeed corroborated the unidimensional model by Spreng et al. (2009) and proved to be an adequate fit for the data. Specifically, the RMSEA value was 0.078, whereas the CFI and GFI values were 0.969 and 0.960, respectively. The chi-square test of the model was significant, a predicted finding due to our large sample size (Mueller 2000). There is a lack of validation studies in different languages as far as the TEQ is concerned. We managed to identify two such studies; in the first, a research on Turkish university students (Totan et al. 2012), researchers were also able to sufficiently replicate the one-factor model, although the manufacturers advise caution that some situations may require a multi-faceted construct (Spreng et al. 2009). In the other one, a study on Korean graduate students (Han 2016), the researchers claimed that according to the confirmatory factor analysis there lacked a goodness of fit in the single factor model, while according to the exploratory factor analysis the single factor was suggested. In our study, the internal consistency reliability of the TEQ was satisfactory at $\alpha =$ 0.72, comparable to the one reported by the manufacturers (Spreng et al. 2009) and by other researchers (Baldner and McGinley 2014; Robinson and Wright 2013; Celik et al. 2013; Totan et al. 2012; Balteş and Miu 2014; Youssef et al. 2014). Taking into account that TEQ is scored on a scale from 0 to 4, the mean score 3.2 (SD = 0.4) found in our study suggests that our sample reported rather high levels of empathy or, in any case, higher than the mean score reported in the original questionnaire (Spreng et al. 2009).

Multiple regression analysis revealed that sex, working status, the presence of students in need of special education and the training in mental health promotion could predict the empathy of Greek educators; however, the R2 of the model was low. Specifically, women scored higher in the TEQ, supporting similar findings that females tend to exhibit higher empathy than males (Spreng et al. 2009; Totan et al. 2012; Balteş and Miu 2014; Youssef et al. 2014; Toussaint and Webb 2005; Turnage et al. 2012). These sex differences do not emerge in all empathy studies however, prompting Baldner and McGinley (Baldner and McGinley 2014) to state that self-report measures of empathy do not vastly differentiate among genders. It could be hypothesized that the variant findings reflect the divergence in empathy conceptualization, but also the many interpersonal and intrapersonal factors that come into play. Age and years of teaching did not correlate with the TEQ, indicating that empathy does not change over the years in Greek educators due to maturity, neither gets altered by teaching experience, unlike skills such as problem solving (Kourmousi et al. 2016) and locus of control (Kourmousi et al. 2015).

Multiple regression analysis further revealed that greater scores were found in teachers who worked full time. We can only hypothesize that the limited days or months part-time teachers spend with one class prevents them from engaging in deep relationships with their students, either because they cannot afford the time, or simply because they prefer to keep it that way since they know that they will soon have to work somewhere else. The presence of students in need of special education also seemed to affect self-reported empathy in Greek educators; the ones who had such students performed better in the TEQ. Empathy's association with interpersonal sensitivity could explain those teachers' higher levels of empathy on TEQ. Lastly, teachers who had received mental health promotion training also exhibited higher self-reported empathy according to the multiple regression analysis; this finding

was somewhat expected since active listening is often an important part of such training programs (Kaminski et al. 2008; Ragozzino et al. 2003).

6. Strengths and Limitations

The main strengths of the present study are the large sample of contributing educators and their diversity concerning their specialty, the grade they taught, the years of teaching experience and the geographical areas in which they worked Furthermore, the percentage of the study participants' representation concerning sex, mean age, mean working years, working status, teaching grade, specialty, and geographical region, was identical with the one presented by the Greek Statistical Authority concerning educators of the 2015–2016 academic year (Greek Statistical Authority 2016). That, together with the facts that (a) all Greek school units are officially linked to the Panhellenic School Network on the site of which our study was posted and (b) all Greek regions were represented accordingly, can characterize our sample as representative. In addition, we were able to confirm the good fit of TEQ, a short and homogenous construct, to a Greek sample. We should stress though, that since the Greek version approximately approached the original one, with the exception of one item which was found to have a low loading and was excluded, we suggest that future researchers should administer it in whole but omit this item in the scoring procedure.

Other limitations can also be identified. Given that the design of the study was cross-sectional, we were not able to examine the TEQ's sensitivity over time or its test-retest reliability. Furthermore, the convergent validity of the TEQ was not tested, since another similar scale validated for adults in Greece does not yet exist. Another weakness of this study which was conducted via internet is the possibility of participants having completed a questionnaire more than once.

7. Conclusions

In conclusion, the TEQ can be applied to Greek educators' populations with good construct validity and internal consistency for evaluating empathy adding support for its easy utilization, not only in the educational community but in the adult population in general. However, more studies concerning teachers' empathy and tools that measure it should be conducted in Greece, in order to identify reinforcing factors, especially those that could be enhanced. Further investigation of the role of mental health promotion training should also be realized. Finally, validation studies conducted in other countries would help in the investigation of the TEQ's reliability and validity in other languages as well.

Author Contributions: N.K. conceived, designed and conducted the study, with the help of V.K., K.M., and A.B. C.T. analyzed the data. E.A. drafted the manuscript, and together with the other authors reviewed its final form.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix

Greek Translation of the Toronto Empathy Questionnaire

1. Όταν κάποιος άλλος είναι ενθουσιασμένος, έχω την τάση να ενθουσιάζομαι και εγώ.
2. Οι δυστυχίεσ των άλλων ανθρώπων δεν με ενοχλούν πάρα πολύ.
3. Με αναστατώνει να βλέπω να συμπεριφέρονται σε κάποιον χωρίσ σεβασμό.
4. Παραμένω ανεπηρέαστοσ/η όταν ένα κοντινό μου πρόσωπο είναι ευτυχισμένο
5. Μου αρέσει να κάνω τουσ άλλουσ να αισθάνονται καλύτερα.
6. Τρέφω συναισθήματα στοργήσ και νοιάζομαι για ανθρώπουσ λιγότερο τυχερούσ από εμένα.
7. Όταν ένασ/μια φίλοσ/η αρχίζει να μιλά για τα προβλήματά του/τησ, προσπαθώ να στρέψω τη συζήτηση σε κάτι άλλο

8. Μπορώ να καταλάβω πότε οι άλλοι είναι λυπημένοι, ακόμα και όταν δε λένε τίποτε.
9. Θεωρώ ότι συντονίζομαι με τη διάθεση των άλλων ανθρώπων.
10. Δεν αισθάνομαι συμπόνια για τουσ ανθρώπουσ που προκαλούν στον εαυτό τουσ σοβαρέσ ασθένειεσ.
11. Αισθάνομαι εκνευρισμό όταν κάποιοσ κλαίει.
12. Δεν με ενδιαφέρει πραγματικά πώσ αισθάνονται οι άλλοι άνθρωποι.
13. Όταν βλέπω κάποιον που είναι αναστατωμένος, νιώθω μια έντονη ανάγκη να βοηθήσω
14. Όταν βλέπω να συμπεριφέρονται άδικα σε κάποιους, δεν νιώθω οίκτο γι' αυτούσ.
15. Το βρίσκω ανόητο να κλαίνε άνθρωποι από χαρά.
16. Όταν βλέπω κάποιον να τον εκμεταλλεύονται, αισθάνομαι απέναντί του κάπωσ προστατευτικά.

Note: Permission to use the Greek translation of the TEQ is granted for educational purposes only, upon request. We suggest that the scale should be administered as presented, but exclude the 11th item from the scoring procedure.

Abbreviations

ANOVA	Analysis Of Variance
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
EFA	Exploratory Factor Analysis
GFI	Goodness of Fit Index
RMSEA	Root Mean Square Error of Approximation
TEQ	Toronto Empathy Questionnaire
χ^2	chi square

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