



Five-factor personality traits as predictors of intercultural sensitivity among Turkish preservice teachers

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ABSTRACT

The aim of this study is to examine the relationships between the five-factor personality traits and intercultural sensitivity among Turkish preservice teachers. The participants of this study were 1218 college students enrolled at a university located in the central Black Sea Region of Türkiye. The participants were selected using a convenience sampling method. The preservice teachers responded to a survey comprising the Personal Information Form, Intercultural Sensitivity Scale, and Quick Big Five Personality Scale. The data were analyzed using descriptive statistics, Pearson product-moment correlation analysis, multiple linear regression analysis, and relative importance analysis. The results of this study showed that preservice teachers with stronger personality traits of agreeableness, extraversion, emotional stability, and openness to new experiences tend to have higher levels of intercultural sensitivity. Moreover, results of relative importance analyses revealed that agreeableness is the most important predictor of intercultural sensitivity among preservice teachers whereas emotional stability was found to be the least important predictor. The findings of this study can help to determine personality traits related to intercultural sensitivity among preservice teachers.

1. Introduction

Globalization has become an important concept in the modern world. Accordingly, citizens around the world must be able to effectively act and establish constructive interactions in intercultural contexts. This is necessary not only for immigrants or foreign workers living in a new cultural environment but also for members of the cultural majority (the dominant community) who encounter cultural diversity in schools, workplaces, and other public spaces in everyday life. In this regard, increasing intercultural communication skills is important and necessary for individuals to successfully communicate with people from other cultures. According to Chen and Starosta [1], to exhibit sufficient intercultural communication skills, individuals should have intercultural awareness, intercultural sensitivity, and intercultural adroitness. These researchers defined intercultural awareness as cognitive competence in understanding and distinguishing cultural differences whereas intercultural adroitness was defined as behavioral competence in interacting with individuals from different cultural backgrounds. The concept of intercultural awareness examined in the current study covers the willingness and desire to accept and respect intercultural differences. According to Chen and Starosta [1], intercultural awareness represents the cognitive dimension of intercultural communication skills, intercultural adroitness represents the behavioral dimension, and intercultural sensitivity represents the affective dimension.

Chen and Starosta [1] suggested that intercultural sensitivity also consists of five interrelated factors: intercultural engagement,

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respect for cultural differences, interaction confidence, interaction enjoyment, and interaction attentiveness. These researchers stated that intercultural engagement provides information about one's engagement level in intercultural communications. Respect for cultural differences, however, refers to recognizing, accepting, and respecting the cultural differences of others. Interaction confidence is the confidence one feels while communicating between interlocutors. Interaction enjoyment refers to interlocutors' level of enjoyment of intercultural communication. Finally, interaction attentiveness refers to one's ability to accurately receive and respond to messages during intercultural communications.

One of the sustainable development goals adopted by the United Nations [2] is to ensure inclusive and equitable quality education that promotes lifelong learning opportunities for all. Therefore, developed and developing countries are creating initiatives to ensure children from different cultural backgrounds have equal opportunities for quality education. This goal of the United Nations gives teacher education institutions the responsibility to train future teachers to ensure the effective education of students with different cultural backgrounds. To fulfill this responsibility, teacher education institutions have to provide preservice teachers with comprehensive content knowledge and effective teaching skills in multicultural environments [3–5].

Türkiye is home to more than 51 ethnic groups, mostly Kurds, Zaza Kurds, Circassians, Bosnians, Georgians, Albanians, Arabs, and Pomaks [6]. According to current data, there are more than three and a half million Syrian refugees with temporary protection status in Türkiye [7] due to the Syrian civil war. About two-thirds of Syrian refugees are school-age children aged less than 18 years [8]. The fact that education is an important tool to heal refugee children from trauma, help them improve their social and structural integration into society, and present important goals for social mobility compels Türkiye to develop new plans and strategies, especially to make the educational structure and reforms more effective [9].

According to 2019 Turkish Statistical Institute data, in addition to Syrians, people from more than 73 different nations, including Afghanistan, Turkmenistan, Iran, Germany, Azerbaijan, Uzbekistan, and Russia, live in Türkiye. These people from many different countries and ethnic groups make Türkiye a culturally diverse country; therefore, it is expected that many culturally, racially, ethnically, and linguistically diverse students will require an education in Türkiye in the coming years. To promote inclusive learning environments that help teachers contemplate effective teaching in diverse classrooms, understand the cultural differences of students, and establish the connections between students and teaching practices, the factors related to the intercultural competence of teachers and preservice teachers should be determined [3,10]. However, very few studies have been conducted in Türkiye on multiculturalism, intercultural sensitivity, or multicultural teacher education. A literature survey revealed that most of the studies on these topics were conducted in Western countries [11–14].

Previous studies have shown that individuals with a higher level of intercultural sensitivity can effectively communicate with people from other cultures; display leadership skills; and have high social and cultural intelligence, high tolerance for uncertainty, high academic and work performance, effective conflict resolution skills, and less ethnocentrism [12,13,15–17]. Furthermore, studies examining intercultural sensitivity or intercultural communication competence in teachers or preservice teachers revealed that teachers and preservice teachers with higher intercultural sensitivity also have greater intercultural teaching competence, more positive attitudes toward intercultural education, positive intercultural beliefs, and intercultural teaching experience [18,19]. Moreover, some previous reports have indicated that teachers and preservice teachers with higher intercultural sensitivity have higher levels of intercultural awareness, intercultural knowledge, and intercultural skills [19]. Therefore, determining factors related to intercultural sensitivity among preservice teachers is important and necessary for identifying and developing effective approaches and strategies to improve intercultural understanding in teachers and preservice teachers.

Previous studies indicated that the development of intercultural sensitivity among individuals depends on a complex interaction of many individual, social, environmental, and cultural factors [20–22]. Existing literature indicate that many individual, social, environmental, and cultural factors can affect people's intercultural sensitivity. However, which of these factors is directly related to the intercultural sensitivity of individuals is unknown. Previous studies have examined the intercultural sensitivity levels of individuals and identified some factors that can be related to intercultural sensitivity, such as intercultural experience [23,24], free time activities [25], social intelligence [26], motivation [27], cultural intelligence [28], ethnocentrism [29], sociodemographic factors [17,30–32], and academic performance [13]. However, few studies have examined the relationships between personality traits and intercultural sensitivity among different samples and cultures.

Personality traits play an important role in adapting to a new culture and effectively coping with the difficulties of intercultural environments [33]. According to a broad definition, personality refers to the permanent characteristics and behaviors that form one's unique adjustment to life, including interests, drives, values, self-concept, abilities, and emotional patterns [34]. Although many theories have been developed to explain personality traits, the five-factor model of personality traits is one of the most commonly accepted theories in the discipline [35,36]. This model explains personality traits through five broad trait dimensions or domains: emotional stability, extraversion, openness to experience, agreeableness, and conscientiousness. Emotional stability, the first dimension of the five-factor personality traits, is defined as low anxiety and low anger, low reactivity and sensitivity, and low depression. It is also considered the opposite of neuroticism. The most prominent characteristics of individuals with high emotional stability are being less prone to negative emotions and being emotionally strong [37]. Conversely, extraversion encompasses being warm, sociable, active, excitement-seeking, assertive, and having positive emotions. Openness to experiences describes a personality open to fantasies, imaginative, interested in art and aesthetics, and creative. Agreeableness is a personality trait that reflects straightforwardness, altruism, compliance, humility, benevolence, and friendliness. Finally, conscientiousness is defined as self-control and being organized, responsible, and disciplined [38].

Individuals with high levels of emotional stability experience their emotions in a balanced manner because they do not have an anxious personality and low reactivity [37]. Therefore, the personality traits of these individuals can help them tolerate cultural differences and establish good relations with individuals from different cultures [39]. Individuals with higher agreeableness are honest

and unselfish in their relationships, open to making sacrifices, gentle, compassionate, and cooperative. In addition to these characteristics, they also tend to trust and reassure others [40]. Individuals with higher extraversion are social, assertive, enjoy interacting with other people and entertainment, and are empathetic to others. Moreover, individuals with higher conscientiousness are organized, controlled, friendly, helpful, and pursue success. Finally, individuals with higher openness to experiences are known to be curious, free-spirited, open-minded, and open to change; have broad interests; and are not afraid of innovation. These individuals are highly skilled in generating ideas and imagination, do not hesitate to innovate, and value their independence [37].

A literature survey revealed that only a limited number of studies have examined the relationships between five-factor personality traits and intercultural sensitivity [12,13]. According to Chen and Starosta [41], individuals' intercultural sensitivity is strongly associated with their self-concept, open-mindedness, nonjudgmental attitudes toward different cultures, and social comfort. Therefore, individuals' intercultural sensitivity can be positively related to agreeableness, extraversion, conscientiousness, and openness to experiences. However, Chen and Starosta [41] did not discuss the personality trait of emotional stability. The results of previous limited studies mostly supported the predictions of Chen and Starosta [41]. For example, Van der Zee and Brinkmann [12] conducted a study involving adults and found that open-mindedness—an important element of the personality trait of openness to experience—is a significant predictor of intercultural sensitivity; however, they did not observe any correlation between emotional stability and intercultural sensitivity. Another study conducted with a sample of college students Wang and Zhou [13] examined the relationships between the dimensions of intercultural sensitivity (intercultural engagement, respect for cultural differences, interaction confidence, interaction enjoyment, and interaction attentiveness) and the five-factor personality traits. The results of this study showed that the five-factor personality traits of extraversion, openness to experience, and agreeableness were significantly and positively correlated (varying from low to moderate) with all dimensions of intercultural sensitivity. Furthermore, the conscientiousness dimension was found to be weakly and positively correlated with all dimensions of intercultural sensitivity except interaction confidence. However, the studies discussed above had five important limitations. First, because they were conducted in Western countries, whether their findings can be generalized to Muslim countries like Türkiye hosting too many refugees is unknown. Second, these studies involved adult or college-student samples. Therefore, whether these findings can be generalized to preservice teachers is also unknown. Furthermore, previous studies did not examine the predictive role of the five-factor personality traits on intercultural sensitivity but generally examined the association between personality traits and intercultural sensitivity without controlling for other five-factor personality traits of individuals [13]. Fourth, these studies did not examine the associations among all dimensions of the five-factor personality traits and intercultural sensitivity. For example, Wang and Zhou [13] did not examine the relationship between emotional stability and intercultural sensitivity and only used bivariate correlations without determining the relative importance of the five-factor personality traits to changes in the interpersonal sensitivity levels of individuals. Similarly, Van der Zee and Brinkmann [12] did not investigate the relationships between intercultural sensitivity and the five-factor personality traits of agreeableness, extraversion, and conscientiousness. Finally, no previous study examining the relationship between personality traits and intercultural sensitivity has conducted a relative importance analysis.

Relative importance analysis is an important statistical technique that can be used to evaluate the relative contribution of each predictor variable in a multiple linear regression model [42–44]. In the context of intercultural sensitivity and the current study, conducting relative importance analyses can help researchers identify the most important personality predictors of intercultural sensitivity and help them improve model accuracy, interpret study findings, and select predictor variables [45]. For example, relative importance analyses can help identify the most important personality predictors in a model by quantifying the relative contribution of each predictor variable. This can be useful in situations in which there are many predictor variables, as in this study. Relative importance analysis findings may help researchers reveal the independent variables that have the most impact on the outcome variable.

In addition, the limitations of previous studies examining the relationship between five-factor personality traits and intercultural sensitivity among Turkish preservice teachers can have several practical implications, such as enhancing intercultural communication, improving teacher–student relationships, creating inclusive classroom environments, and developing effective teacher-training programs [3,46–48]. First, if I identify the personality traits that are associated with intercultural sensitivity, Turkish preservice teachers can be trained to develop these traits and enhance their intercultural communication skills [47]. Second, when Turkish preservice teachers possess high levels of intercultural sensitivity, they are more likely to understand and appreciate the cultural differences of their students. This can lead to better teacher–student relationships, which can have a positive impact on student motivation, engagement, and academic achievement [49–51]. Third, Turkish preservice teachers who are aware of the effect of their own personality traits on their intercultural sensitivity are more likely to create inclusive classroom environments that value diversity and promote equity. This can help all students, regardless of their cultural background, feel accepted and respected in the classroom. Last, teacher-training programs can be designed to incorporate these factors into their curriculum by understanding the relation between personality traits and intercultural sensitivity. This can help future teachers develop the necessary skills to work in diverse classrooms and effectively teach students from different cultural backgrounds. Therefore, the aim of this study is to examine the relationships between intercultural sensitivity and the five-factor personality traits in Turkish preservice teachers. The following are the specific research questions that guided the present study.

1. Is the personality trait of agreeableness in preservice teachers a significant predictor of intercultural sensitivity?
2. Is the personality trait of extraversion in preservice teachers a significant predictor of intercultural sensitivity?
3. Is the personality trait of conscientiousness in preservice teachers a significant predictor of intercultural sensitivity?
4. Is the personality trait of emotional stability in preservice teachers a significant predictor of intercultural sensitivity?
5. Is the personality trait of openness to new experiences in preservice teachers a significant predictor of intercultural sensitivity?

6. What are the most important and least important five-factor personality traits that predict intercultural sensitivity among Turkish preservice teachers?

2. Method

2.1. Research Model

I designed a cross-sectional study was designed to examine the relationship between personality traits and intercultural sensitivity among Turkish preservice teachers. Cross-sectional studies aim to examine similarities and differences in a given sample within a given period or temporal relationships among variables without any control or manipulation by the researcher [52]. The dependent variable of the study was intercultural sensitivity; and the independent variables were agreeableness, extraversion, conscientiousness, emotional stability, and openness to new experiences. The research design is shown in Fig. 1.

2.2. Participants

The sample of this study consisted of 1218 college students from eight different teacher-education programs in a teacher-education faculty of a university located in the central Black Sea Region of Türkiye. The preservice teachers were selected using the convenience sampling method [52]. Convenience sampling is a nonprobability sampling method in which researchers determine the sample considering several factors, such as cost, time, and easy accessibility to the desired population. Of the participants, 307 (25.2%) were males, and 911 (74.8%) were females. The age of the preservice teachers ranged from 18 to 30 years with a mean age of 20.97 ($SD = 1.73$) years. The majority of the preservice teachers were third-year teacher education students ($n = 332$, 27.3%) followed by fourth-year ($n = 325$, 26.7%), second-year ($n = 291$, 23.9%), and first-year ($n = 270$, 22.2%) students. The gender, grade level, and large age distribution of the current sample reflects the current student population of Amasya University Faculty of Education students.

3. Data collection tools

3.1. Sociodemographic characteristics

A personal information form was used to collect information about the gender, age, year in college, and department of the preservice teachers.

3.2. Intercultural sensitivity

To measure preservice teachers' intercultural sensitivity levels, I used the Intercultural Sensitivity Scale developed by Chen and Starosta [1]. The adaptation of the scale into the Turkish language and validity and reliability studies were carried out by Üstün [53]. Although the original scale consists of five subscales, Üstün [53] reported that the Turkish version of the scale comprises a single factor structure using exploratory factor analysis. Because of the very low item-factor loading value of item 19 ($\lambda = 0.19$; "I am sensitive to my culturally-distinct counterpart's subtle meanings during our interaction"), Üstün [53] removed this item from the Turkish version of the scale. For this reason, although the original scale comprised 24 items, the Turkish version of this scale comprises 23 items. The scale contains items related to intercultural engagement, respect for cultural differences, interaction confidence, interaction enjoyment, and interaction attentiveness. Participants rate their level of agreement to each item on a 5-point Likert-type scale ranging from Strongly

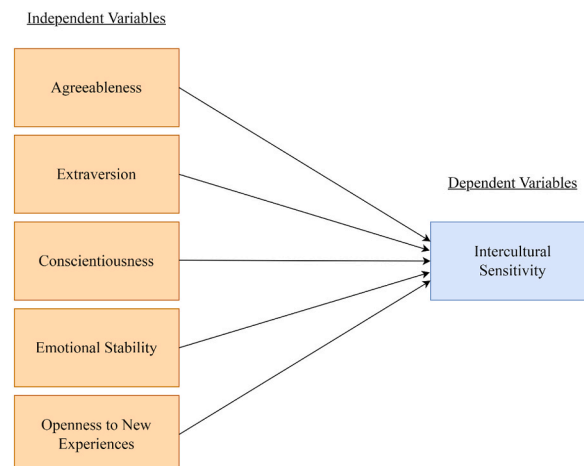


Fig. 1. Research model.

Disagree (1) to Strongly Agree (5). Scores may range from 23 to 115. Higher scores indicate higher levels of intercultural sensitivity. Although Chen and Starosta [1] reported a Cronbach's alpha internal consistency coefficient for the original version of the scale as 0.88, Üstün [53] reported a Cronbach's alpha internal consistency coefficient for the Turkish version of the scale as 0.90. The internal consistency coefficient calculated in this study was 0.86. A sample item from the scale is "I am open-minded to people from other cultures."

3.3. Big five personality

To measure the five-factor personality traits of the participants, I used the Quick Big Five Personality Scale developed by Vermulst and Gerris [54]. Morsinbül [55] conducted the adaptation, reliability, and validity studies of the scale in the Turkish language. The scale measures the personality traits of agreeableness, extraversion, conscientiousness, emotional stability, and openness to new experiences using a 7-point Likert-type scale. The score that can be obtained from each subscale varies from 6 to 42. Higher subscale scores indicate a higher level of the measured personality trait. The Cronbach's alpha internal consistency coefficient values calculated in this study were 0.71 for agreeableness, 0.84 for extraversion, 0.83 for conscientiousness, 0.72 for emotional stability, and 0.72 for the openness to new experiences subscale. Some sample items were "likes to work together" for agreeableness, "communicative" for extraversion, "organized" for conscientiousness, "anxious" for emotional stability, and "imaginative" for openness to new experiences.

3.4. Data collection process

The data for this study were collected from college students attending a teacher education faculty in the fall semester of the 2022–2023 academic year. Before conducting the study, I received ethical permission for the research from Amasya University Ethics Committee for Scientific Research and Publication (Ethical Decision Number: E-30640013-108.01-103189). I administered a questionnaire comprising a Personal Information Form, Intercultural Sensitivity Scale, and Quick Big Five Personality Scale to the preservice teachers in paper/pencil format. The participants were told that participation in the study was voluntary; their answers would be kept confidential and would not be used other than for research purposes; and that they could withdraw before, during, or after the study without reprisal. All preservice teachers voluntarily participated in this study, and they provided written informed consent before filling out the surveys. The preservice teachers filled out the survey in approximately 20 min.

3.5. Data analysis

All statistical analyses were performed using SPSS 23 program. I conducted preliminary analyses to examine the accuracy of the data, missing values, univariate and multivariate outliers, and assumptions of statistical analyses used as suggested by Tabachnick and Fidell [56]. To assess the accuracy of the data, I examined the minimum and maximum values of each variable and frequency distributions which were found to be within the expected range. I inputted a very small amount of randomly distributed missing data using an expectation-maximization algorithm as implemented in the SPSS 23 missing value analyses module. Although data were initially collected from 1235 participants, seven univariate outliers and eight multivariate outliers were identified and excluded from the dataset as suggested by Tabachnick and Fidell [56]. Thus, I used the remaining useable 1218 surveys in the analyses. I used descriptive statistics, including frequency, percentage, mean, and standard deviation values to present information about the gender, age, year in college, and program of the preservice teachers. I used the Pearson product-moment correlation coefficient to determine the strength and direction of the linear relationship between intercultural sensitivity and agreeableness, extraversion, conscientiousness, emotional stability, and openness to new experiences. Furthermore, I conducted standard multiple regression analysis to identify the personality traits that predict intercultural sensitivity among preservice teachers. To interpret correlation values and ratios of the explained variance, I used the effect size classification proposed by Cohen [57]. According to Cohen [57], an absolute correlation coefficient between 0.00 and 0.29 indicates a small effect size, 0.30 to 0.49 indicates a medium effect size, and 0.50 or above indicates a large effect size. Similarly, an R^2 value between 0.00 and 0.12 indicates a small, 0.13 to 0.25 indicates a medium, and 0.26 or above indicates a large effect size. To calculate the relative contribution of each personality trait to the regression equation, I performed relative importance analyses.

To examine the relative contributions of each independent variable to the regression equation, I used semi-partial correlation, standardized Pratt's measure (d_p ; Wu, Zumbo, & Marshall [44]), squared structure coefficient (r_s^2 ; Nathans, Ostwald, & Nimon [43]) and relative weight analysis Johnson [58]). A semi-partial correlation value shows the relationship between the specific independent variable and dependent variables when the contributions of other variables were controlled. The square of this value represents the change in the proportion of the explained variance (R^2) when this variable added the regression equation (when hierarchical regression analysis is conducted). Pratt's d_p value shows the proportion of variance explained by an independent variable in the explained variance (R^2). A structure coefficient is the Pearson correlation coefficient that shows the relationship between the dependent variable scores predicted by the regression equation and the specific independent variable. Finally, Johnson's relative weight analysis shows the proportion of variance explained by an independent variable in the regression equation when there is no multicollinearity problem among independent variables. I calculated the squared structure coefficient and relative weight analysis using the SPSS syntax file developed by Lorenzo-Seva et al. [42]. A $p < 0.05$ was considered significant in all inferential statistical analyses.

4. Results

Table 1 shows the results of the Pearson product–moment correlation coefficient analyses performed to examine the relationship between intercultural sensitivity scores and agreeableness, extraversion, conscientiousness, emotional stability, and openness to new experiences scores among preservice teachers.

As seen in Table 1, intercultural sensitivity scores of preservice teachers were weakly and positively correlated with conscientiousness ($r = 0.13$) and emotional stability ($r = 0.27$) and moderately and positively correlated with agreeableness ($r = 0.40$), extraversion ($r = 0.38$), and openness to new experiences ($r = 0.38$).

To identify predictor variables for intercultural sensitivity and the predictive power of personality traits over intercultural sensitivity among preservice teachers, I conducted a standard linear multiple regression analysis. The change statistics for the standard multiple regression analysis are presented in Table 2. The results of the standard linear regression analysis and relative importance analyses are shown in Table 3.

As seen in Table 2, the model developed to predict intercultural sensitivity scores among preservice teachers was found to be significant ($F(5, 1212) = 93.83, p < 0.001, \Delta R^2 = 0.28$). This model explained about 28% of the variance in intercultural sensitivity scores and had a high effect size. As seen in Table 3, agreeableness ($\beta = 0.24, t(1212) = 8.37, p < 0.001$), extraversion ($\beta = 0.22, t(1212) = 7.87, p < 0.001$), emotional stability ($\beta = 0.10, t(1212) = 3.57, p < 0.001$), and openness to new experiences ($\beta = 0.19, t(1212) = 6.73, p < 0.001$) scores were positive significant predictors of intercultural sensitivity scores. Conversely, conscientiousness ($\beta = 0.02, t(1212) = 0.74, p > 0.05$) scores were not correlated with intercultural sensitivity scores.

According to the standardized beta and semipartial correlation values, the independent variables with the highest contribution to the regression equation were agreeableness, extraversion, openness to new experiences, and emotional stability. Results of standardized Pratt's relative variable importance analysis revealed that the variable with the highest proportion of explained variance in the R^2 value was agreeableness with 34% of explained variance, followed by extraversion with 30%, openness to new experiences with 26%, and emotional stability with 9%. According to the squared structure coefficients, the variables indicated that the highest proportion of the predicted dependent variable scores were agreeableness, openness to new experiences, extraversion, and emotional stability. Finally, when there was no multicollinearity problem among independent variables (when all explanatory variables were completely independent of one another), the relative weight analysis showed that agreeableness, openness to new experiences, extraversion, and emotional stability were the variables with the highest explained proportion of the variance in R^2 value. In conclusion, according to the relative importance analyses, the variable with the highest direct contribution to the regression equation was agreeableness, and the variable with the lowest contribution was emotional stability. Results of regression analysis also revealed that preservice teachers with stronger personality traits of agreeableness, extraversion, openness to new experiences, and emotional stability tend to exhibit higher levels of intercultural sensitivity.

5. Discussion

This study presents the examination of the relationships between the personality traits and the intercultural sensitivity of preservice teachers. The results indicated that preservice teachers with higher scores on the personality trait of agreeableness also tended to have higher levels of intercultural sensitivity. These findings are consistent with previous studies reporting a positive association between the personality trait of agreeableness and intercultural sensitivity among college student samples [13,41]. Agreeableness refers to broad but related individual differences about how one establishes interaction with others. This personality trait also reflects the difference between being prosocial or other-oriented and being antisocial or self-directed in social interactions [37]. Previous studies showed that individuals with higher levels of agreeableness experience less interpersonal conflict [59], tend to be more empathetic [60], are more accepted by their peers, have better relationships with their peers, and exhibit higher social competence [61]. According to Chen and Starosta [41], more flexible individuals are less aggressive toward others and more easily adapt to a new culture. Similarly, Novikova et al. [11] found that the agreeableness characteristics of individuals are positively correlated with the ability to recognize and accept cultural differences and take these differences into account during interactions. Therefore, high competencies in interpersonal relations can help these individuals establish agreeable relations with others, which further leads to easy engagement in intercultural interactions, more self-confidence in interacting with individuals from different cultures, and enjoyable interactions with individuals from different cultures, which in turn may help to increase their interpersonal sensitivity.

Table 1
Results of the Pearson product-moment correlation coefficient analyses.

	1	2	3	4	5	6
1. Intercultural sensitivity						
2. Agreeableness	0.40					
3. Extraversion	0.38	0.25				
4. Conscientiousness	0.13	0.26	0.04			
5. Emotional stability	0.27	0.18	0.43	0.13		
6. Openness to new experiences	0.38	0.45	0.30	0.16	0.15	
Mean	92.29	34.66	24.34	29.97	23.59	32.07
Standard deviation	9.19	4.37	7.55	7.02	6.34	4.92

Note. All correlation values ≥ 0.13 are significant at least at the $p < 0.001$. Other correlation values are not significant.

Table 2
Change statistics for intercultural sensitivity scores.

Model	R	R ²	Adj. R ²	SE Est	Change statistics				
					ΔR^2	ΔF	df ₁	df ₂	p
Intercultural Sensitivity	0.53	0.28	0.28	7.82	0.28	93.83	5	1212	0.001***

Note. *** $p < 0.001$.

Table 3
The results of linear regression analysis and relative importance analyses for intercultural sensitivity scores.

	B	SE	β	t	p	sr	d _p	r _s ²	GAD%
Constant	53.08	2.05		25.95	0.001***				
Agreeableness	0.50	0.06	0.24	8.37	0.001***	0.20	0.34	0.69	34.1
Extraversion	0.27	0.03	0.22	7.87	0.001***	0.19	0.30	0.53	24.4
Conscientiousness	0.03	0.03	0.02	0.74	0.457	0.02	0.01	0.06	2.0
Emotional stability	0.14	0.04	0.10	3.57	0.001***	0.09	0.09	0.31	12.2
Openness to new experiences	0.35	0.05	0.19	6.73	0.001***	0.16	0.26	0.62	27.3

Note. *** $p < 0.001$, sr = semi-partial correlation, d_p = standardized Pratt's relative variable importance value, r_s² = squared structure coefficient, GAD = relative importance weight, GAD% = relative weight ratio.

The results of this study showed that preservice teachers with high levels of extraversion also tend to have higher intercultural sensitivity. This finding is consistent with previous reports indicating extroverted individuals tend to have high intercultural sensitivity [11,13]. According to Wang and Zhou [13], extroverted individuals had higher levels of intercultural engagement, respect for cultural differences, interaction enjoyment, and interaction attentiveness skills. According to Novikova [11], extroverted individuals had more ethnorelativistic attitudes and were therefore more prone to accepting intercultural differences. Furthermore, some studies indicated that extroverted individuals had a high tolerance for obscurity and intercultural competency [14,62]. Thus, extraversion personality traits may help preservice teachers develop their intercultural sensitivity.

Furthermore, the results of this study indicated that preservice teachers with higher levels of emotional stability had higher levels of intercultural sensitivity. Although this finding is consistent with theoretical expectations [63], it is not consistent with previous reports showing that neuroticism is not associated with intercultural sensitivity [11]. According to Widiger [63], the personality trait of emotional stability is an important factor that determines the reactions of individuals to threat, frustration, or loss. Because intercultural interaction and intercultural sensitivity require a certain level of ability to tolerate feelings of threat or frustration, high emotional stability can be an important factor in higher intercultural sensitivity among preservice teachers. The difference between the results of the current study and those obtained by Novikova et al. [11] can be linked to two factors. First, Novikova et al. [11] measured intercultural sensitivity using an instrument proposed by Hammer et al. [64] based on the theory of intercultural competence. However, I used the scale developed by Chen and Starosta [1] in this study. The second factor might be due to cultural and sample differences. The current study involved Turkish preservice teachers whereas Novikova et al. [11] examined college students enrolled in different programs at a Russian university. Accordingly, the differences in the samples and measurement instruments might lead to different results. Conversely, some previous studies reported findings that corroborate current study findings [14,63]. Intercultural sensitivity is an important element of intercultural competence. Wilson et al. [14] conducted a meta-analysis study and found that neurotic individuals (the opposite of emotional stability) tend to have lower intercultural competence. An overall evaluation of the results of studies on the personality trait of emotional stability indicates the need for more studies based on different cultures.

Moreover, the current results revealed that the preservice teachers with the stronger personality trait of openness to new experiences also had higher intercultural sensitivity. This finding is consistent with theoretical expectations [41] and some previous reports [11–14,33]. According to Chen and Starosta [41], open-mindedness, which is an important dimension of openness to new experiences, is an important predictor of intercultural sensitivity. The current results support these findings. Furthermore, current results are also consistent with previous empirical findings. For example, Van der Zee and Brinkmann [12] also reported that open-mindedness is a positive and significant predictor of intercultural sensitivity. Novikova et al. [11] found that individuals who are open to new experiences had a strong ability to recognize and accept intercultural differences as well as the ability to use these skills in interactions with others. Another study found openness to new experiences to have positive correlations varying from low to moderate with some dimensions of intercultural interaction Wang and Zhou [13]. In a recent meta-analysis study, Wilson [14] also found that openness to new experiences and flexibility were positively correlated with intercultural competency. Previous studies indicated that individuals who are open to new experiences enjoy learning new things from others' experiences, are curious about new cultures, and try to understand different ideas [37]. Therefore, it can be expected that preservice teachers who are open to new experiences also display higher intercultural sensitivity.

Finally, the results of this study showed that conscientiousness is not a significant predictor of intercultural sensitivity among preservice teachers. This finding is not consistent with the results of the limited number of previous studies [13]. However, Wang and Zhou [13] examined the relationships between the five-factor personality traits and intercultural sensitivity using correlation analysis; in other words, they examined the relationship between the five-factor personality traits and intercultural sensitivity without controlling for the effects of other five-factor personality traits on intercultural sensitivity. Similarly, in the current study, although the

correlation analysis showed that the personality trait of conscientiousness positively correlated with intercultural sensitivity, the regression analysis results indicated that the personality trait of conscientiousness was not a significant predictor of intercultural sensitivity in preservice teachers. In other words, the effect of the personality trait of conscientiousness on the intercultural sensitivity of preservice teachers might be limited when considered with the other four broad personality traits. Further studies are needed to clarify the association between conscientiousness and interpersonal sensitivity in different samples.

Results of the relative importance analyses showed that agreeableness is the most important predictor of intercultural sensitivity in preservice teachers. Moreover, extraversion and openness to new experiences were also found to be important predictors of intercultural sensitivity. These findings emphasize the importance of selecting individuals who are high in agreeableness, extraversion, and openness to new experiences for teacher education programs. This could involve using personality assessments as part of the selection process to identify individuals who possess the necessary traits for effective intercultural communication and understanding. Moreover, preservice teachers who exhibit weaker levels of agreeableness, extraversion, emotional stability, and openness to new experiences might be selected as potential participants in intercultural sensitivity training programs for preservice teachers. Second, teacher-education programs should provide training and support for preservice teachers to develop their agreeableness, extraversion, openness to new experiences, and intercultural sensitivity. This could involve incorporating activities and assignments that promote intercultural communication and understanding as well as providing opportunities for preservice teachers to interact with individuals from diverse cultural backgrounds. Accordingly, activities about asking questions, perspective, using body language, knowing when to change the subject, empathy, and teamwork can be conducted in preservice teacher programs to increase preservice teachers' conscientiousness in social environments [4,47]. Third, teacher education programs should also emphasize the importance of self-reflection and awareness among preservice teachers. This can help preservice teachers identify their own biases and assumptions and develop a more open and inclusive mindset toward individuals from different cultural backgrounds [4].

6. Limitations

Certain limitations of this study should be kept in mind when interpreting its findings. First, this study was conducted with preservice teachers enrolled at a university located in the central Black Sea Region of Türkiye. Therefore, the external validity of the study is low because these preservice teachers' lives and experiences may be different from those studying in big cities or different regions of Türkiye. Furthermore, the generalizability of the results to all college students is also low because this study involved only preservice teachers. Second, the preservice teachers' intercultural sensitivity and five-factor personality traits were measured using self-report scales. Therefore, the study results include common response biases such as midpoint responding and social desirability [65]. Finally, because I designed a cross-sectional study, cause-and-effect relationships cannot be established based on the study findings.

7. Recommendation for future studies

Based on findings and limitations of current study, following recommendation may be made for future studies. Researchers may examine the effectiveness of intervention programs designed to enhance intercultural sensitivity in preservice teachers, considering their personality traits in future studies. This could include training programs, workshops, or international experiences. Future studies can also conduct qualitative research to gain a deeper understanding of the experiences and perspectives of preservice teachers with different personality traits, and how these traits may influence their intercultural sensitivity. Future studies may also compare the intercultural sensitivity and personality traits of preservice teachers with those of in-service teachers to explore potential differences and similarities, and to identify areas for improvement in teacher education programs. Lastly, future studies can explore other factors that may influence intercultural sensitivity, such as cultural intelligence, empathy, and social skills. This may provide a more comprehensive understanding of the factors that contribute to intercultural sensitivity in preservice teachers.

8. Conclusion

Consequently, the findings of this study revealed that personality traits of agreeableness, extraversion, openness to new experiences, and emotional stability are correlated with the intercultural sensitivity of preservice teachers. These findings can help determine factors related to intercultural sensitivity in multicultural societies like Türkiye. Furthermore, the study findings can help identify culture-specific and intercultural variables associated with intercultural sensitivity in individualistic and collectivistic cultures.

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Data availability statement

Data underlying this article are available from Mendeley Data (<https://data.mendeley.com/datasets/ypxj8h384j>).

Informed consent

Informed consent was obtained from all individual participants included in this study.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Author contribution statement

Alpay Aksin: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Additional information

Supplementary content related to this article has been published online at [URL].

Declaration of competing interest

The author declare that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2023.e17867>.

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