Danuta Wosik-Kawala
Ewa Sarzyńska-Mazurek
Mariusz Korczyński
Halyna Bevz

Ukrainian adaptation of Chen and Starosta's Intercultural Sensitivity Scale

Abstract: The situation in Ukraine caused by war since 2014 and the intensification of hostilities from 2022 have led many Ukrainian citizens to emigrate. Living in other countries requires the need to adapt to often different cultural conditions. Intercultural sensitivity is an important dimension of intercultural communication competence that determines if individuals effectively adjust to a new reality. This study aims to adapt the most widely used tool for measuring intercultural sensitivity, the Intercultural Sensitivity Scale (2000) by Chen and Starosta, to Ukrainian conditions.

This article comprises a presentation of a Ukrainian version of the questionnaire for measuring cross-cultural sensitivity, along with its psychometric properties. The obtained results showed that Chen and Starosta's five-factor model of intercultural sensitivity (IS) did not fit the Ukrainian cultural context. A confirmatory factor analysis of the previous adaptations of IS, showed that the best model for the present study was the Serbian model. Therefore, we created a four-factor IS model containing 15 items (α-Cronbach's 0.841). These factors, along with the items included in the Ukrainian version of the Intercultural Sensitivity Scale, were based on the 24-item Intercultural Sensitivity Scale (ISS) formulated by Chen and Starosta. This study contains a proposaal of an alternative model of the Intercultural Sensitivity Scale that is better suited to Ukrainian culture.

The questionnaire with a key is attached to the article for other researchers to use in their studies.

Keywords: intercultural sensitivity, Intercultural Sensitivity Scale, research instrument adaptation, confirmatory factor analysis, exploratory factor analysis

Introduction

The armed aggression of the Russian Federation against Ukraine has been going on since 2014, and since February 24, 2022, there has been an escalation of this conflict and an open invasion of Ukraine by Russian troops. This situation has caused many Ukrainian citizens, mostly women and children, to emigrate mainly to the European Union countries to seek haven there. European countries granted Ukrainian migrants (refugees) temporary protection with the right to work in the EU, access to health care, education, and social benefits. The influx of war refugees from Ukraine to the countries that provide them with assistance has many economic, financial, social, and cultural consequences. Extremely important elements of migrants' cultural capital are: their linguistic competence, recognized norms and values, and readiness for social integration. The competence of intercultural communication plays a special role in this regard, enabling people from different cultures to communicate effectively and appropriately. Intercultural sensitivity plays a significant role in this context since it involves recognizing cultural differences and a willingness to modify one's behavior as an expression of respect for people from other cultures (Bhawuk and Brush, 2004).

Developing intercultural sensitivity is so important because people with high intercultural sensitivity display a greater willingness to learn, recognize, and accept cultural differences, and are able to interact more effectively with people from other cultures (Chen and Starosta, 1997). With high intercultural sensitivity, Ukrainian expatriates can more easily find their way in both the educational systems and the labour market of the countries in which they are living (Gómez Yepes, Etchezahar, Albalá Genol and Maldonado, 2023). A prerequisite for the effective development of intercultural sensitivity is reliable and accurate diagnosis. Information obtained in the diagnosis can help teachers construct educational programs aimed at strengthening the intercultural sensitivity of participants of the educational process, and thus also their chances for satisfactory social integration.

In the context of research on cross-cultural sensitivity, Chen and Starosta's approach is the most popular. According to them, intercultural sensitivity means "an individual's ability to develop emotion towards understanding and appreciating cultural differences that promotes appropriate and effective behavior in intercultural communication" (Chen and Starosta, 1997, p. 5). Since intercultural sensitivity is dynamic, interculturally sensitive people must mo-

tivate themselves to understand, appreciate and accept differences between cultures as a result of intercultural interactions. According to the authors, cross-cultural sensitivity is related to the cognitive, affective, and behavioral aspects of cross-cultural interactions.

The cognitive aspect denotes intercultural awareness and is manifested in the ability to understand cultural similarities and differences. The behavioral aspect stands for intercultural proficiency and refers to the ability to achieve communication goals when interacting with people from other cultures. Intercultural sensitivity, on the other hand, mainly concerns the affective aspect and refers to an emotional desire to understand, appreciate, and accept cultural differences (Chen and Starosta 1997). Following this approach, Chen and Starosta built a model of intercultural communication competence consisting of three dimensions: intercultural awareness, intercultural sensitivity, and intercultural proficiency. Intercultural sensitivity, which is the affective component of this competence, plays the most important role in this model (1997). To assess intercultural sensitivity, they created the Intercultural Sensitivity Scale (ISS) (Chen and Starosta, 2000). This scale consists of 24 statements rated by using a 5-point Likert method: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree and 5 = strongly agree. The scale can be used to calculate the total score of intercultural sensitivity and it scores on 5 dimensions: Interaction Engagement (items: 1, 11, 13, 21, 22,23, 24), Respect of Cultural Differences (items: 2, 7, 8, 16, 18, 20), Interaction Confidence (trust in interaction) (items: 3, 4, 5, 6, 10), Interaction Enjoyment (items: 9, 12, 15), and Interaction Attentiveness (items 14, 17, 19). The total score is obtained by adding up all the items. For items 2, 4, 7, 9, 12, 15, 18, 20 and 22, the scoring needs to be reversed. High scores reflect high cross-cultural sensitivity (Chen and Starosta, 2000).

This scale is often used in diagnosing cross-cultural sensitivity in various settings. However, researchers point out the need to adapt Chen and Starosta's model to the cultural conditions of a given country (Fritz, Möllenberg and Chen, 2002; Fritz, Graf, Hentze, Möllenberg and Chen, 2005; Tamam 2010; Petrovic, Starčević, Chen, and Komnenić, 2015; Wu, 2015; Korczynski and Majerek, 2021; Bahar-Ozvarıs, Güçiz-Dogan, Konşuk-Ünlü, Sanver, Susuz, and Sullivan, 2022). This is what the ISS authors pointed out as well. A country's social, political, economic, and cultural context can be important for the application of the Intercultural Sensitivity Scale.

The presented research is aimed to adapt the Intercultural Sensitivity Scale to Ukrainian culture. The adaptation work began with translating the

Intercultural Sensitivity Scale (Chen and Starosta, 2000) from English into Ukrainian, following the principles of linguistic equivalence. Two translators translated the 24 statements of the scale from English into Ukrainian, and then after the individual statements were agreed upon (after ambiguities were clarified), another translator re-translated the scale from Ukrainian into English. The next step was to compare the translated version with the original. The finished questionnaire was subjected to professional proofreading and linguistic review.

The research was carried out between December 31, 2022, and June 6, 2023. Residents of Ukraine from all regions were invited to participate. The largest group were residents of the Khmelnytskyi region (163 people – 14.8%) and the city of Kyiv (123 people – 11.2%). A total of 1101 people participated in the study, including 866 women (78.7%) and 235 (21.3%) men. This disproportion is due to the situation in Ukraine, as it is mainly men who are involved in activities related to the ongoing armed conflict and therefore their participation in the survey was significantly limited.

The study group consisted of students between the age of 15 and 30, and the average age of the respondents was 22, SD 7.23. The study was conducted in an online asynchronous format – the respondents could take the survey at their convenience. Participation in the study was voluntary, anonymous and was not rewarded with any benefits. Given the situation of the ongoing war, conducting research using traditional methods proved to be extremely difficult, hence the decision to implement the study using an online survey created on a web platform. Respondents were selected using the snowball method, which involved participants recruiting other participants[1].

Intercultural Sensitivity Scale – a model for Ukraine

Most of the studies devoted to cross-cultural sensitivity have used exploratory (EFA) or confirmatory (CFA) analysis, hence the significant differences between the obtained research results on the number of factors that make up cross-cultural sensitivity models (Wu, 2015). Exploratory factor analysis is used to search for the structure of the data when the researcher does not

have assumptions about that structure, as opposed to confirmatory analysis, which is based on theoretical assumptions about the structure of a given model (Bedyńska and Cypryańska, 2013). In this study, both exploratory and confirmatory analyses were used.

Exploratory factor analysis

The first step in the search for the factor structure of the Intercultural Sensitivity Scale (ISS) was the exploratory factor analysis of the collected data. The KMO coefficient value = .927 indicated that the factor model is suitable for explaining the structure of a given correlation matrix, and this is also confirmed by Bartlett's test of sphericity – 7621.233, df = 276, p < .001. The principal axis method (PAF) was used to examine the factor structure, following the procedure used by Chen and Starosta (2000). This study identified four factors with eigenvalues above 1 (see Figure 1). These factors explained 37.79% of the variance. Therefore, the number of factors is smaller than in the analysis done by Chen and Starosta, who distinguished five factors.

Figure 1. Scree plot
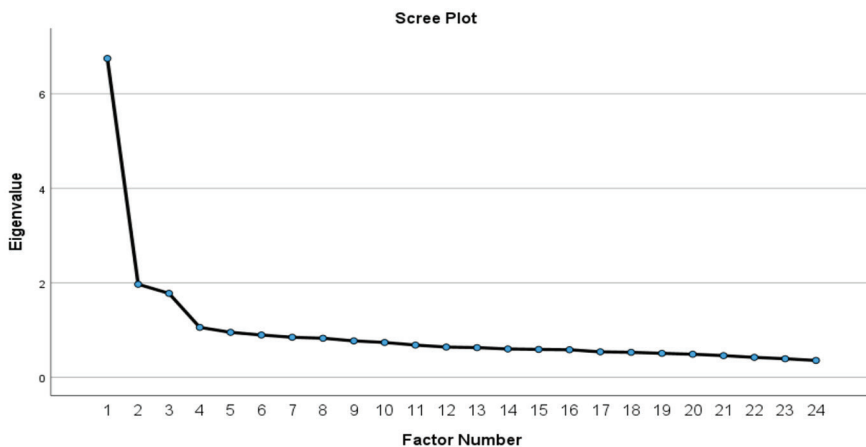
Source: own research.

On the basis of the data in the scree plot, four factors can be adopted for further analysis, which also confirms the Kaiser's criterion.

Varimax orthogonal rotation, which gives clear and stable results (Gorniak, 1998), was used to identify item loadings on each factor. It was assumed that the minimum value of factor loadings included in the analyses

was .4. Table 1 shows the item loadings in the rotated solution that obtained a value above .4. Thus, items that did not achieve the indicated minimum value of factor loadings were removed from the model; and these were 1, 11, 19, 20, 22.

Table 1. Four-Factor Model of Intercultural Sensitivity

Item	Factor I	Factor II	Factor III	Factor IV
M3 I am pretty sure of myself in interacting with people from different cultures.	.713			
M4 I find it very hard to talk in front of people from different cultures.	.538			
M5 I always know what to say when interacting with people from different cultures.	.623			
M1O I feel confident when interacting with people from different cultures.	.774			
M2 I think people from other cultures are narrow-minded.		.424		
M6 I can be as sociable as I want to be when interacting with people from different cultures.		.629		
M7 I don't like to be with people from different cultures.		.518		
M8 I respect the values of people from different cultures.		.570		
M18 I would not accept the opinions of people from different cultures.		.440		
M13 I am open-minded to people from different cultures.			.480	
M16 I respect the ways people from different cultures behave.			.567	
M17 I try to obtain as much information as I can when interacting with people from different cultures.			.580	
M21 I often give positive responses to my culturally different counterpart during our interaction.			.506	
M23 I often show my culturally-distinct counterpart my understanding through verbal or nonverbal cues.			.402	
M24 I have a feeling of enjoyment towards differences between my culturally-distinct counterpart and me.			.482	
M9 I get upset easily when interacting with people from different cultures.				.446
M12 I often get discouraged when I am with people from different cultures.				.430
M14 I am very observant when interacting with people from different cultures.				.505

Item	Factor I	Factor II	Factor III	Factor IV
M15 I often feel useless when interacting with people from different cultures.				.426
Percentage of variance explained	10.70	10.07	9.68	7.32

Source: own research.

The results of the exploratory factor analysis showed that the five-factor structure of Chen and Starosta's model was not reproduced, hence confirmatory factor analysis was proceeded (CFA).

Confirmatory factor analysis

In this study, the confirmatory analysis was performed using AMOS 28 software. The same procedure in testing the Intercultural Sensitivity Scale was used by Fritz, Mollenberg, Chen (2002); Fritz, Graf, Hentze, Mollenberg, Chen (2005); Tamam (2010); Petrovic, Starcevic, Chen, Komnenic (2015); Wu (2015) and Korczynski, Majerek (2021). Several models were tested: the American, Polish, German, Taiwanese, Malaysian and Serbian. The method of generalized least squares (GLS) was used as the estimation method in the analyses. Several indicators of the right fitting of the empirical data to the tested models were adopted (see: Table 2).

Table 2. Rightness of fit indices in the CFA models of the Intercultural Sensitivity Scale

Model	df	χ^2	χ^2/df	Hoelter's N	RMSEA	GFI	AGFI	CFI
A	242	753.544***	3.114	433**	.044	.900	.876	.562
B	199	670.342***	3.369	408**	.046	.900	.873	.514
C	59	269.900***	4.570	356**	.057	.921	.878	.700
D	167	593.093***	3.551	394**	.048	.885	.855	.542
E	84	245.900***	2.928	524**	.042	.938	.911	.758

**$p < .01$; ***$p < .001$; $\chi2/df$ – adjusted $\chi2$ by degrees of freedom; RMSEA – root mean square error of approximation; GFI – goodness-of-fit index; AGFI – adjusted goodness-of-fit index; CFI – comparative fit index

Model A – American model by Chen, Starosta (2000), Polish model by Korczyński and Majerek (2021); Model B – German model by Fritz, Möllenberg, and Chen (2002); Model C – Taiwanese model by Wu (2015); Model D – Malaysian model by Tamam (2010); Model E – Serbian model by Petrovic, Starcevic, Chen, and Komnenic (2015)

Source: own research.

Considering that the $\chi 2$ index is sensitive to the sample size and often reaches statistically significant values, the value of the index adjusted by the $\chi 2/df$ degrees of freedom was used. The recommended value of the good fit index should not exceed 3.0. Another indicator is the Steiger–Lind RMSEA (root mean squared error of approximation of the sample to the ideal population). The model is assumed to be well fitted to the data when the index value is < .5. On the other hand, Hoelter's critical N (CN) informs for how large a sample (considering the achieved fit) there would be no grounds for rejecting the null hypothesis about the equality of the empirical and theoretical distribution. When Hoelter's CN value is greater than 200, the model can be considered well fitted. The next analyzed indices of right fitting are: GFI (goodness of fit index), AGFI (adjusted goodness of fit index) and CFI (comparative fit index), which should have values > .9 (some recommend even > .95) (Niezabitowska and Poprawa, 2020).

In the first tested model (A), a 5-factor structure was adopted, which was consistent with the original version of the ISS by Chen and Starosta (2000) and with the Polish version by Korczyński and Majerek (2021). 24 items were analyzed following the model of Chen and Starosta, confirmed by Korczyński and Majerek. It was assumed that all factors of intercultural sensitivity were correlated. For model A, the following fitt indices were obtained: $\chi 2 = 753.54$, $df = 242; p < .001; \chi 2/df = 3.114$; RMSA = .044; GFI = .90; AGFI = .876; CFI = .562. The values of the $\chi 2/df$ and CFI indices were below the recommended values. All factors of cross-cultural sensitivity were significant (p < .001) and positively correlated with one another. The qualitative analysis of model A showed that not all items significantly loaded the corresponding factors. Three factors had factor loadings below the assumed value of .4. This model turned out not to be a good fit.

The next tested model (B) was a 5-factor German model with 22 items. The fit indices in this case were: $\chi 2 = 670.34$, $df = 199$; $p < .001$; $\chi 2/df = 3.114$; RMSA = .046; GFI = .900; AGFI = .911; CFI = .514. All factors were positively and significantly correlated (p < .001). Three values of factor loadings were below the recommended value of 0.4. Therefore, this model did not meet the conditions of a good fit.

The next tested model (C) was the four-factor Taiwanese model with 13 items. The values of fit indices obtained in this case: $\chi 2 = 269.9$, $df = 59$; $p < .001$; $\chi 2/df = 4.57$; RMSA = .057; GFI = .921; AGFI = .878; CFI = .700 did not meet the criteria for a good fit.

Model D, on the other hand, is a three-factor Malaysian model with 20 items. The fit index values obtained in this model were as follows: χ^2 = 593.093; df = 167; p < .001; χ^2/df = 3.551; RMSA = .048; GFI = .885; AGFI = .855; CFI = .542. These values, as in the case of the models tested so far, were not satisfactory, and therefore this model was not considered a good fit.

The best fit model turned out to be the Serbian model (E). The fit values were: χ^2 = 245.9, df = 84; p < .001; χ^2/df = 2.928; RMSA = .042; GFI = .938; AGFI = .911; CFI = .758. The obtained values of factor loadings were considered satisfactory (see: Figure 2).

Figure 2. Model of Intercultural Sensitivity adopted in this study or Estimation of Structural Equation Model; F1 – Interaction Engagement; F 2 – Respect for Cultural Differences; F 3 – Interaction Enjoyment; F 4 – Interaction Confidence
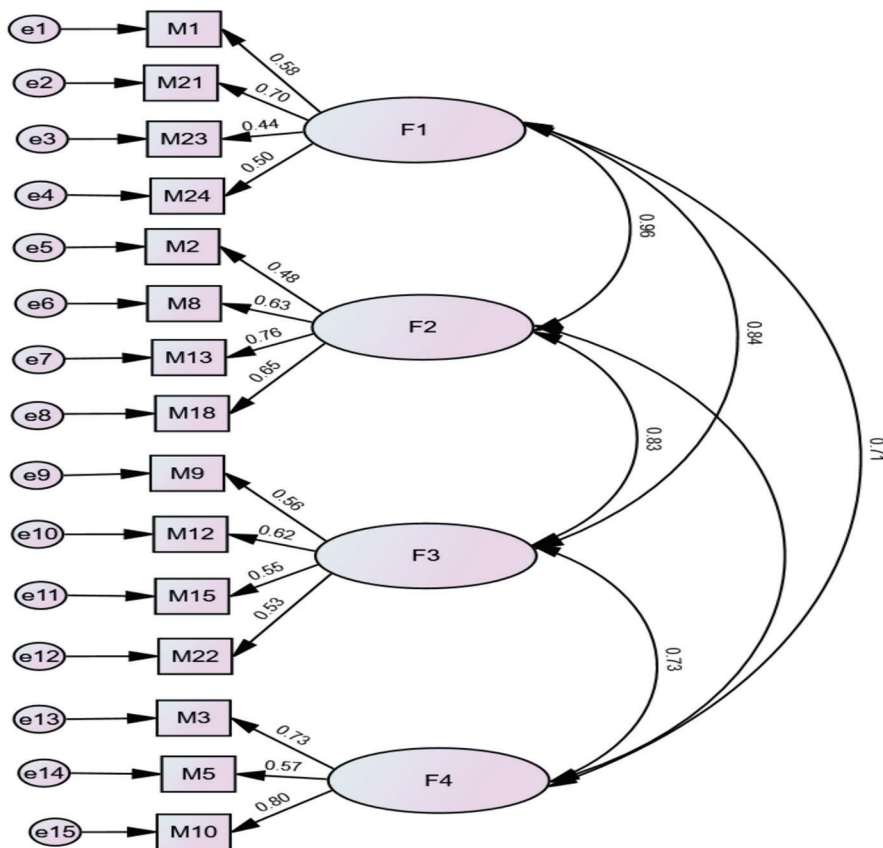
Source: own research.

The conducted analyses suggest an alternative model of the Intercultural Sensitivity Scale to the model developed by Chen and Starosta, which is better suited to Ukrainian culture. This model, based on the Serbian adaptation of the Intercultural Sensitivity scale, contains 15 items forming four factors (see: Figure 2): Interaction Engagement, items 1, 21, 23, 24; Respect for Cultural Differences, items 2, 8, 13, 18; Interaction Enjoyment, items 9, 12, 15, 22; and Interaction Confidence, items 3, 5, 10. Therefore, the Interaction Attentiveness factor, present in the model proposed by Chen and Starosta (2000), was not included in the model adapted for Ukraine.

The values of standardized factor loadings for each of the distinguished subscales are acceptable (see: Table 3).

Table 3. The value of the reliability index (Cronbach's α) for the Ukrainian model

Subscale	Cronbach's α
Interaction Engagement	.609
Respect for Cultural Differences	.708
Interaction Enjoyment	.658
Interaction Confidence	.772
Intercultural Sensitivity Scale	.841

Source: own research.

The reliability indices of Cronbach's α obtained in the study are bigger than .6, which means that the reliability of the Intercultural Sensitivity Scale tested for the Ukrainian conditions and its components are satisfactory.

Discussion

Intercultural sensitivity is an important communicative competence widely diagnosed in various cultural contexts. The basic tool for examining this competence is the Intercultural Sensitivity Scale (ISS) developed in 2000 by Chen and Starosta. This tool, consisting of 5 factors covering 24 items, was designed for research in the United States. On the basis of this conceptual model, many researchers have tried to adapt this scale to their own cultural context (Fritz, Möllenberg and Chen, 2002; Fritz, Graf, Hentze, Möllenberg and Chen, 2005; Korczyński and Majerek, 2021; Bahar-Ozvarıs, Güçiz-Dogan, Konsuk-Unlü, Sanver, Susuz, and Sullivan, 2022). Frequently, how-

ever, the developed models differ from the original version of the ISS both in the number of factors and the number of items (e.g. Wu, 2015; Tamam, 2010).

This study has reinterpreted the ISS by Chen and Starosta and proposed a four-factor model based on the adaptation of the ISS by Petrovic, Starčević, Chen, and Komnenić (2015). The conducted exploratory and confirmatory analyses recommend using four factors for the study of Intercultural Sensitivity in Ukrainian culture. On the basis of the conducted analyses, a 15-item model of the Intercultural Sensitivity Scale was developed for research conducted among Ukrainian citizens. The proposed items included in this model were based on the values of standardized factor loadings. The conducted analyses indicate that it is a reliable and accurate tool for diagnosing intercultural sensitivity, which is the main component of communicative competence.

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Шкала міжкультурної чутливості (Г.-М. Чен та В.Я. Староста), адаптована Д. Восік-Кавала, Е. Саржинською-Мазурек, М. Корчинським та Г. Бевз

Нижче подається ряд тверджень щодо міжкультурної комунікації. Немає правильних чи не правильних відповідей. Будь ласка, працюйте швидко і запишіть своє перше враження, вказавши, наскільки ви згодні або не згодні з твердженнями. Дякуємо за співпрацю. Оцініть своє відношення за шкалою: 5 – повністю згідний, 4 – згідний, 3 – не визначено, 2 – не згідний, 1 – зовсім не згідний.

Я отримую насолоду від спілкування з людьми з іншої культури.

Я вважаю, люди інших культур мають вузьке мислення.

Я досить впевнено почуваюся під час спілкування з людьми інших культур.

Я завжди знаю, що сказати у розмові з людьми з інших культур.

Поважаю цінності людей з інших культур.

Легко втрачаю рівновагу під час розмови з людьми з інших культур.

Я відчуваю себе впевнено у спілкуванні з людьми з іншої культури.

Я некомфортно почуваюся себе в оточенні людей інших культур.

Я відкритий/відкрита до людей інших культур.

Відчуваю свою меншовартісність у спілкуванні з людьми інших культур.

Я Нетолерантний/нетоларантна до думки людей інших культур.

Як правило, позитивно налаштований/налаштована до співрозмовників іншої культури

Я намагаюсь уникати контактів з людьми інших культур.

Я часто показую людині з іншої культури своє розуміння за допомогою вербальних або невербальних сигналів.

Задоволений/задоволена культурними відмінностями мене і моїх колег.

Ключ до підрахунку

Для пунктів 2, 6, 8, 10, 11, 13 поміняйте місцями бали. Загальний бал за шкалою міжкультурної чутливості підраховується шляхом додавання всіх 15 пунктів.

Підшкали (виміри) міжкультурної чутливості:

Залучення до взаємодії (Interaction Engagement) – 1, 12, 14, 15.

Повага до культурних відмінностей (Respect for Cultural Differences) – 2, 5, 9, 11.

Приємність взаємодії (Interaction Enjoyment) – 6, 8, 10, 13.

Довіра до взаємодії (Interaction Confidence) – 3,4, 7.