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# Evidence from Turkish and Syrian People for the Measurement Invariance of the CBBE Scale and Clues for the Distribution Strategies of the Brands

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## Abstract

**Purpose:** This research aims to test the measurement invariance of the consumer-based brand equity scale on Turkish and Syrian university students who live together but are from different cultural groups. **Research design, data, and methodology:** The consumer-based brand equity scale developed by Buil et al. (2008) is applied to the participants. In testing the consumer-based brand equity scale, the Netflix brand, which is considered well-known by both cultural groups, is preferred. It is thought that choosing an internationally recognized brand would facilitate the conduct of this research. Structural invariance and measurement invariance are tested using structural equation modeling. **Results:** The consumer-based brand equity scale has measurement invariance on Turkish and Syrian university students. Therefore, it has been revealed that the responses of participants from both cultures regarding the Netflix brand are comparable. **Conclusion:** The findings of the study provide clues for practitioners to review their distribution strategies. As a matter of fact, cultural studies conducted in different countries are common. Still, the originality of this study is ensured by the profile of participants who live in the same country but come from different countries.

**Keywords:** Consumer-Based Brand Equity, Measurement Invariance, Distribution Strategy.

**JEL Classification Code:** L11, M30, M31, E20, E21.

## 1. Introduction

Marketing researchers are familiar with detecting differences by examining individuals' variables such as age, gender, occupation, etc. The subject to be measured may produce different findings among these groups. For example, the behavior of watching television or using digital platforms may differ in varied age groups. It is possible to obtain such findings if the measurement tool can measure what is desired. However, when a valid measurement tool in

one culture group is translated and applied to various cultural groups, researchers often think they are measuring the same construct and thus obtain several findings. However, this assumption is not correct, and measurement invariance needs to be tested.

Measurement invariance is a prerequisite for making meaningful comparisons between various cultural groups. If this assumption is valid, comparisons are also valid and differences/similarities between groups can be interpreted in a meaningful way. If this assumption is not valid,

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comparisons and interpretations are also meaningless (Milfont & Fischer, 2010: 111).

This research aims to test the measurement invariance of the consumer-based brand equity scale on Turkish and Syrian university students who live together but are from various cultural groups. The motivation for this purpose is the idea that clues will be obtained for both the distribution strategy of the brands and new researchers. For this reason, it was thought that choosing an internationally recognized brand would facilitate the conduct of this research. In testing the consumer-based brand equity scale, the Netflix brand, which we think is well-known by both cultural groups, was preferred. In this context, configural and metric invariance analyses introduced by Steenkamp and Baumgartner (1998), which are widely accepted in the literature, were used.

## 2. Literature Review

### 2.1. Consumer Based Brand Equity

The brand is a living, changing, and developing phenomenon. In an increasingly competitive environment, the continuous improvement of the products and services of enterprises stems from the importance of changing. Brands need to be able to convey their differentiation policies to their customers well and gain an important place in their minds. The formation of more conscious consumer masses increases this importance even more. In this context, brands strive to be valued by their audiences. This phenomenon has been conceptualized as brand equity in the marketing literature.

The emergence of the concept of brand value was in the 1980s. The concept has attracted the attention of researchers and practitioners and has become important today (Walgren et al., 1995: 26). It is seen that some of the studies on brand equity are consumer-based and some are financial-based (for a detailed classification, see: Firat & Badem, 2008). Since a marketing-oriented approach is followed in this study, the “consumer-based brand equity approach” is taken as the basis. When the literature is examined, various definitions, approaches, and dimensions of consumer-based brand equity are encountered in studies conducted by various researchers. Studies in this area by Aaker and Keller provide important information that is frequently referenced. Aaker (1991: 15) defined consumer-based brand equity as “a set of brand assets that add to or subtract from the value provided to the business and/or its customers by a product or service linked to a brand, its name, and logo”. Aaker (1991) also states in his research that consumer-based brand equity consists of five dimensions. These dimensions are brand loyalty, brand awareness, brand associations, perceived quality, and proprietary assets. Four of these

dimensions are included in the scale used in this study (Buil et al., 2008). Keller (1993: 8), on the other hand, defined consumer-based brand equity, which he expressed by using cognitive psychology, as “the differentiation effect of consumers’ brand knowledge on the marketing of a brand”. There are three important concepts in the definition: “differentiation effect”, “brand information” and “consumer response”. The differentiation effect is determined by the difference in consumer response. Brand knowledge is defined as brand awareness and brand image, and consumers’ reaction to marketing activities consists of perceptions, preferences, and behaviors arising from marketing mix activities.

### 2.2. Measurement Invariance

With measurement invariance, if a scale is applied to more than one group, it is tested whether the same thing is measured in each group. Differently, it can be explained as “whether or not measurement processes provide measurements with the same quality under various conditions of observing and examining phenomena” (Horn and McArdle, 1992: 117). Especially in different countries or cultures, the phenomenon of measurement invariance is of greater importance. However, measurement invariance in several groups is tested from various dimensions (Steenkamp & Baumgartner, 1998; Byrne et al., 1989; as cited in Dimitrov, 2010; Bayram, 2018: 8). Configural Invariance: It is the most basic level of measurement invariance. At this stage, the hypothesis that the factor structure of a measurement tool is equal/invariant between groups is tested. Obtaining evidence of structural invariance means that the instrument measures the same thing across groups. A second and higher level of equivalence is called metric invariance (Steenkamp & Baumgartner 1998; Vandenberg & Lance, 2000). “Metric Invariance” requires that the factor loads between the observed items and the latent variable be equal between the groups compared (Davidov, 2014: 63). Thus, it makes it possible to compare difference scores (i.e., mean or adjusted scores such as non-standardized regression coefficients and covariance) between populations (Steenkamp & Baumgartner, 1998: 80). Scalar Invariance: It refers to the model tested by associating the structures between the two groups with the Structural Equation Modeling. For this, the goodness of fit values of the models should be at an acceptable level. In our study, convergent validity values were calculated for each group in addition to the goodness of fit values. Strict Invariance: It is a fairly high level of invariance. It requires more stringent parameter equality constraints between groups and is harder to obtain but allows for more extensive forms of international comparison.

The measurement invariance is analyzed as (Bayram, 2018: 13): “Chi-square and CFI values from two nested models are most commonly used to test for invariance.  $\Delta\chi^2$  and  $\Delta\text{CFI}$  are calculated by taking the difference between the values for the two models (Cheung & Rensvold, 2002; Harrington, 2008; Huang et al., 2010). Accordingly, a statistically insignificant  $\Delta\chi^2$  value indicates that measurement equivalence was achieved in the groups. In addition, if the  $\Delta\text{CFI}$  value obtained as a result of the comparison of the two models is equal to or less than 0.01 ( $\Delta\text{CFI} \leq 0.01$ ), it indicates that metric measurement

equivalence is achieved in the groups.” Two kinds of Chi-Square statistics can be calculated while calculating the goodness of fit values in structural equation models. One of them is the maximum likelihood Chi-square statistic. The second method is the Satorra-Bentler scaled Chi-square statistic. In our study, the goodness of fit values was calculated for the two groups and the Satorra-Bentler scaled Chi-square (S-B  $X^2$ ) statistic was used. Some of the studies contributing to the literature and the contribution of the present study are shown in Table 1.

**Table 1:** Some Studies from the Marketing Literature and the Contribution of the Present Study

| Authors/year                                   | Purpose   | Location                          | Results   |
|--|---|-----------------------------------|---|
| Yu and Hudders (2021)                          | Testing the measurement invariance of the modified Brand Luxury Index scale   | USA, China, and India             | There is metric invariance between the USA, China, and India, and measurement invariance is supported between the US and India. |
| Tang et al. (2021)                             | Testing the measurement invariance of CETSCALE  | China                             | Measurement invariance is supported.  |
| Delgado-Ballester (2004)                       | Analyzing the equivalence of the psychometric properties of the brand trust scale   | Spain                             | It empirically supports the distinction between the two main dimensions of the developed scale: brand trust and intention.      |
| Strizhakova et al. (2008)                      | Testing the measurement invariance of the scale developed to assess quality, values, personal identity, traditions, etc.          | USA, Romania, Ukraine, and Russia | Measurement invariance is supported.  |
| Kim et al. (2004)                              | Validating Kim and Lim's scale of fashion brand equity  | Korea                             | Measurement invariance is supported.  |
| Eom and Lu (2020)                              | Supporting the assumption that structure is universally equivalent in different shopping contexts                                 | USA                               | Measurement invariance is partially supported.  |
| Li et al. (2015)                               | Demonstrating the robustness and measurement invariance of an alternative scale of brand trust in a cross-cultural context        | USA and China                     | Measurement invariance is supported.  |
| Yoo and Donthu (2002)                          | Investigating the cross-cultural generalizability of the brand equity creation process model                                      | USA and Korea                     | Measurement invariance is partially supported.  |
| Buil et al. (2008)                             | Testing the measurement invariance of the consumer-based brand equity scale   | England and Spain                 | Measurement invariance is supported.  |
| Present research by Kayaoğlu and Gülmez (2023) | Testing the measurement invariance of the consumer-based brand equity scale on consumers of several nationalities living together | Turkey                            | Measurement invariance is supported.  |

Table 1 includes some studies from the literature. Most of the studies in the literature were conducted in various countries. Others test measurement invariance over varied groups in the same country. Contribution of the present study; The participants are composed of two groups living together in the same country but with different nationalities and cultures. After the war, individuals of Syrian nationality sought life in several countries and Turkey received a large number of immigrants. For this reason, this research was carried out with the participation of Syrian and Turkish university students who differ in many respects such as language, race, nationality, and culture, but who are

educated in the same schools and live together in the same place. The brand to be evaluated on the scale is the Netflix brand, which is a popular application that we think is well known to both groups.

### 3. Research Methods and Materials

As a result of the internal turmoil that started in Syria in 2011, many people had to migrate out of Syria. An important part of these immigrants came to Turkey and especially to the regions of Turkey bordering Syria. A

certain part of the individuals who settled in Turkey started to study at universities in Turkey. For this reason, one of the consumer groups included in this research is Syrian students, while the other is Turkish university students. The research tried to measure the consumer-based brand value of the Netflix brand on a group of students living side by side with each other, in similar periods of their lives and coming from two different cultures. As a result of the comparison of the answers given, it is aimed to test whether the thing to be measured is the same in both cultures, that is, the measurement invariance of the scale. As a matter of fact, for the assumption of measurement invariance, the cultural differences of the groups must be found. In this context, according to the Hofstede model (Hofstede, nd), as seen in Figure 1, there is a certain cultural difference between Turkey(Purple) and Syria(Blue).

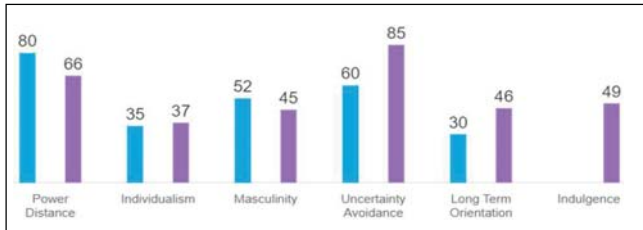


Figure 1: Cultural Comparison

The scale applied in the research has been tested in England and Spain and its validity has been proven among consumers in both countries. Buil et al. (2008) developed this scale by combining expressions frequently used in the literature to measure consumer-based brand equity. Buil et al. (2008: 386) explain the process regarding the scale development process as follows:

A literature review was undertaken to select the most appropriate way to measure each variable. Recall, recognition, and familiarity with the brand were used as measures of brand awareness (Yoo et al., 2000; Netemeyer et al., 2004). Perceived quality was measured using the items proposed by Pappu et al. (2005, 2006). Items proposed by Yoo et al. (2000) were used to measure brand loyalty as the overall attitudinal loyalty to the brand. To measure brand associations, we follow Yoo and Donthu’s (2001) suggestion. They advocate that brand equity dimensions may be expanded to clarify the structure of this construct in detail. Therefore, we included three kinds of associations widely recognized in the literature: perceived value, brand personality, and organizational associations (Aaker, 1996; Chen, 2001; Pappu et al., 2005). Based on Lassar et al. (1995), Aaker (1996), and Netemeyer et al. (2004) three items were used to measure perceived value. Brand personality was measured following Aaker (1996). Finally, for organizational brand associations, Aaker’s (1996) and Pappu’s et al. (2005, 2006) proposals were followed.

The scale developed by Buil et al. (2008) was translated from English into Turkish and Arabic languages for this research. The translation in Arabic was carried out by Syrian nationals from the marketing field of Mardin Artuklu University, Department of Business Administration. Turkish questionnaire forms were examined by academicians in the field of Turkish. Both questionnaires were translated back into English and it was checked that they kept the same meaning. Finally, the questionnaire was finalized by taking expert opinions again. The resulting questionnaire was forwarded to university students in the Southeastern Anatolia Region, which is close to Turkey's Syrian border, by online methods, and individuals who consented answered it. In this context, the participants of the research consist of 444 Turkish students and 443 Syrian students.

#### 4. Findings

In the research, attention was paid to the fact that the participants knew the Netflix brand. For this reason, before the survey form was applied to the people who gave consent to participate in the research, they were asked whether they had purchased the products/services provided by the brand before or whether they are currently customers of the brand. In this context, the demographic data of the participants are presented in Table 2.

Table 2: Demographic Data of the Participants

| Nationality: TURKEY   |            |            | Nationality: SYRIA       |            |            |
|-----------------------|------------|------------|--------------------------|------------|------------|
| Gender                | N          | %          | Gender                   | N          | %          |
| Female                | 283        | 63,7       | Female                   | 225        | 50,8       |
| Male                  | 161        | 36,3       | Male                     | 218        | 49,2       |
| Age                   | N          | %          | Age                      | N          | %          |
| 18-24                 | 392        | 88,3       | 18-24                    | 225        | 50,8       |
| 25+                   | 52         | 11,7       | 25+                      | 218        | 49,2       |
| Income (Turkish Lira) | N          | %          | Income (Turkish Lira)    | N          | %          |
| 1000-                 | 333        | 75,0       | 1000 -                   | 139        | 31,4       |
| 1001-2499             | 58         | 13,1       | 1001-2499                | 149        | 33,6       |
| 2499+                 | 53         | 11,9       | 2499 +                   | 155        | 35,0       |
| Citizenship           | N          | %          | Citizenship              | N          | %          |
| Turkey                | 433        | 97,5       | Turkey                   | 409        | 92,3       |
| Another country       | 11         | 2,5        | Another country          | 34         | 7,7        |
| University            | N          | %          | University               | N          | %          |
| Mardin Artuklu Uni.   | 201        | 45,3       | Mardin Artuklu Uni.      | 380        | 85,8       |
| Harran Uni.           | 17         | 3,8        | Harran Uni.              | 50         | 11,3       |
| Batman Uni.           | 122        | 27,5       | Another uni.             | 13         | 2,9        |
| Dicle Uni.            | 29         | 6,5        | Turkey experience (year) | N          | %          |
| Şırnak Uni.           | 28         | 6,3        | 1-2                      | 39         | 8,8        |
| Siirt Uni.            | 14         | 3,2        | 3-4                      | 102        | 23,0       |
| Another uni.          | 33         | 7,4        | 5+                       | 302        | 68,2       |
| <b>TOTAL</b>          | <b>444</b> | <b>100</b> | <b>TOTAL</b>             | <b>443</b> | <b>100</b> |

Participants answered separate questionnaires as Turkish and Syrian nationals. Individuals of Turkish nationality responded to the forms in Turkish, while participants of Syrian nationality responded to the forms in Arabic. In this context, there are two separate groups in Table 2. When the gender variable is examined, the weight of female university students from Turkey stands out. On the other hand, Syrian participants are approximately equal in terms of gender. Considering the age variable, individuals with Turkish nationality are more concentrated in the 18-24 age range. It is striking that the Syrian participants are approximately equal. When the income variable is considered, it is understood that when the Syrian participants are close to each other, the Turkish participants mark the income option as 1000 TL or less. Considering the citizenship information of the participants, a dominant ratio is seen in both groups. When the universities where the participants studied were examined, it was determined that the Syrian participants were predominantly at Mardin Artuklu University (85.8%), while nearly half of the Turkish students were at the same university. In contrast, the other part of them studied at different universities in the region. In addition, the participants of Syrian nationality were asked how many years they had lived in Turkey. Considering the answers given, it was seen that approximately 70% of the participants lived in Turkey for more than 5 years.

Reliability and validity tests were applied to the research scale. The calculated "Cronbach's Alpha" value was calculated as 96.3 for the Arabic language consumer-based brand equity scale (443 questionnaires) and 96.9 for the Turkish language consumer-based brand equity scale (444 questionnaires). These values show that the answers given have very high reliability. In the validity test, explanatory factor analysis was carried out and the "varimax rotation" method was used. The factor loads of the values collected under 6 factors were over 0.5 and the total variance explained was 79.77 in Arabic and 83.67 in Turkish. Similar to Buil et al. (2008: 388); Items related to brand associations tended to be grouped under different factors. Again, in the same way as Buil et al. (2008: 388), the third statement related to brand identity (I have a clear idea of what kind of people use the Netflix brand) was excluded from the survey analyses in both languages due to their low R2 values. In this context, a structure consisting of 20 expressions and 6 factors were reached. This structure was analyzed by selecting "robust statistics" in the EQS 6.1 program. The reason for choosing this is explained below.

Analysis results are shown in Table 3. Estimation ( $\lambda$ -Lambda- estimates) values are close to 1. At the 0.05 (5%) significance level, t values (regression loads) are significant for all parameters.

**Table 3:** Measurement Analysis Results, Predicted Values of Items (Regression Loads)

| Items | Turkish                                     |               | Arabic                                      |               | General                                     |               |
|-------|---|---------------|---|---------------|---|---------------|
|       | Esti-<br>mates*<br>( $\lambda$ -<br>Lambda) | t-<br>Value** | Esti-<br>mates*<br>( $\lambda$ -<br>Lambda) | t-<br>Value** | Esti-<br>mates*<br>( $\lambda$ -<br>Lambda) | t-<br>Value** |
| AW1   | 1,000                                       |               | 1,000                                       |               | 1,000                                       |               |
| AW2   | 1,204                                       | 24,93         | 1,111                                       | 18,62         | 1,170                                       | 30,26         |
| AW3   | 1,229                                       | 24,30         | 1,117                                       | 19,40         | 1,180                                       | 30,54         |
| AW4   | 1,039                                       | 18,45         | 0,956                                       | 17,35         | 1,002                                       | 25,21         |
| AW5   | 1,103                                       | 22,60         | 0,977                                       | 16,74         | 1,045                                       | 27,45         |
| PQ1   | 1,000                                       |               | 1,000                                       |               | 1,000                                       |               |
| PQ2   | 0,919                                       | 25,18         | 0,923                                       | 24,76         | 0,922                                       | 35,83         |
| PQ3   | 1,023                                       | 29,03         | 1,000                                       | 23,81         | 1,008                                       | 37,92         |
| PQ4   | 1,005                                       | 28,95         | 0,958                                       | 26,20         | 0,984                                       | 39,32         |
| BL1   | 1,000                                       |               | 1,000                                       |               | 1,000                                       |               |
| BL2   | 1,079                                       | 25,01         | 1,228                                       | 18,82         | 1,124                                       | 30,95         |
| BL3   | 0,915                                       | 19,00         | 1,118                                       | 17,66         | 0,990                                       | 26,17         |
| PV1   | 1,000                                       |               | 1,000                                       |               | 1,000                                       |               |
| PV2   | 1,025                                       | 35,21         | 0,840                                       | 23,87         | 0,954                                       | 41,13         |
| PV3   | 0,921                                       | 27,38         | 0,868                                       | 23,86         | 0,905                                       | 33,57         |
| BP1   | 1,000                                       |               | 1,000                                       |               | 1,000                                       |               |
| BP2   | 0,683                                       | 15,48         | 0,950                                       | 19,77         | 0,789                                       | 24,45         |
| OA1   | 1,000                                       |               | 1,000                                       |               | 1,000                                       |               |
| OA2   | 0,920                                       | 31,90         | 1,010                                       | 23,75         | 0,963                                       | 39,56         |
| OA3   | 0,923                                       | 34,12         | 0,970                                       | 23,93         | 0,944                                       | 39,56         |

\*Non-standardized values  
\*\*Significant at the 5% level

Before moving on to configural invariance, the convergent validity analysis of the six-factor structure was performed. Having convergent validity means that the expressions that make up the variables in the model are related both to each other and to the factor they create. In calculating convergent validity, all composite reliability values for the scale must be greater than average variance extracted values, and also all average variance extracted values must be greater than 0.5. Fornell and Larcker's (1981: 40-42) formula is used while calculating composite reliability.

$$CR = \frac{\left(\sum_{i=1}^n \lambda_i\right)^2}{\left(\sum_{i=1}^n \lambda_i\right)^2 + \left(\sum_{i=1}^n \delta_i\right)}$$

$\lambda$ =Standardize factor coefficient  
n= Number of statement  
 $\delta$ = error variance

The average variance extracted is calculated by dividing the sum of the squares of the covariances of the expressions in a factor by the total number of expressions in the factor. Calculations are made separately for each factor structure in the model (Yaşlıoğlu, 2017:82).

The combined reliability and average explained variance values calculated for convergent validity are shown in the table separately for the measurements made in both groups. All values are higher than 0.5. Also, all the “combined reliability” values are greater than the “mean explained variance” values ( $CRi > AVEi$ ). This shows that the scale has convergent validity.

**Table 4:** Convergent Validity Values

|                             | Turkish               |                            | Arabic                |                            |
|-----------------------------|-----------------------|----------------------------|-----------------------|----------------------------|
|                             | Composite Reliability | Average Variance Extracted | Composite Reliability | Average Variance Extracted |
| Brand Awareness             | 0,850                 | 0,532                      | 0,836                 | 0,506                      |
| Perceived Quality           | 0,907                 | 0,712                      | 0,882                 | 0,652                      |
| Brand Loyalty               | 0,839                 | 0,636                      | 0,804                 | 0,579                      |
| Perceived Value             | 0,890                 | 0,731                      | 0,844                 | 0,643                      |
| Brand identity              | 0,681                 | 0,521                      | 0,733                 | 0,578                      |
| Organizational Associations | 0,835                 | 0,629                      | 0,807                 | 0,583                      |

#### 4.1. Configural Invariance Test

For the measurements made for the two groups, the structural validity of the groups (Turkish and Arabic) was calculated by calculating the structural equation model goodness of fit values and the Satorra Bentler scale  $X^2$  (S-B  $X^2$ ) values. The 6-factor SEM model was tested separately for both groups. In order to measure the configural invariance of the scale, the Satorra Bentler scale  $X^2$  (S-B  $X^2$ ) and goodness-of-fit values were calculated for both samples separately. Accordingly, the values in Table 5 were obtained. The RMSA value is below 0.06 in both groups. All other goodness-of-fit values (NFI, NNFI, CFI, and IFI) are greater than 0.90. For the scale, it is understood that goodness of fit was achieved in both groups and there was structural invariance.

**Table 5:** Goodness of Fit Values

|         | S-B $X^2$<br>(df, p)   | NFI   | NNFI  | CFI   | IFI   | RMSEA |
|---------|------------------------|-------|-------|-------|-------|-------|
| Turkish | 373.60<br>(153, 0,000) | 0,943 | 0,957 | 0,965 | 0,965 | 0,057 |
| Arabic  | 329,62<br>(153, 0,000) | 0,927 | 0,950 | 0,959 | 0,960 | 0,051 |

#### 4.2. Metric Invariance Test

The groups were evaluated separately and together, and the goodness-of-fit values required for invariance were quite strong. After that, multi-sample confirmatory factor analysis

was applied to test the metric invariance. The configural invariance test only requires the same number of factors and the factor loading model to be the same between groups (Buil et al., 2008: 388). Therefore, no restrictions were placed on the parameters.

While performing multi-group confirmatory factor analysis, two different fit statistics values were calculated in the EQS. The fact that different fit statistics can be calculated makes the EQS program different from other structural equation modeling programs. As mentioned above, one of these two statistics is the maximum likelihood Chi-Square statistics. The second is the adjusted Chi-Square statistic, calculated on a Satorra-Bentler scale. The fact that this statistic, also called Robust statistics, can be calculated with the EQS program differentiates EQS from other SEM (Structural Equation Model) programs. Again, as explained above, “Calculation of Satorra-Bentler scale statistics allows EQS to solve the problem of multivariate kurtosis in the data by correcting both the Chi-Square statistics and the standard errors.” (Byrne, 2001).

Multi-sample confirmatory factor analysis was performed on the 6-factor basic model for Turkish and Arabic data. The result of the analysis is shown in Table 5. As a result of the analysis, all of the goodness-of-fit values (NFI, NNFI, CFI, and IFI) for the multi-group test were above 0.90 in the unconstrained model, and the RMSEA value was calculated as 0.051 ( $RMSEA \leq 0.06$  representing perfect fit). This shows that the goodness of fit of the structure is strong.

The difference in Satorra-Bentler scale chi-square (S-W  $X^2$ ) values was calculated to compare the two groups to evaluate the putative model and determine whether the fit decreased significantly when the invariance parameters were limited. If this difference value is statistically significant, it shows that the constraints specified in the more restrictive model do not hold. On the other hand, if this difference value is not statistically significant, it shows that the stated equality constraints are justifiable (Buil et al., 2008: 387; Byrne, 2001). In the restricted model, the “factor coefficients in the model” are equalized for both groups, and the changes in the Satorra-Bentler scale chi-square (S-B  $X^2$ ) and goodness-of-fit values, especially CFI, are calculated. For this purpose,  $\Delta S-B X^2$ ,  $\Delta df$ , and  $\Delta CFI$  values were calculated as seen in Table 6 to look at metric invariance as the next step, since the structural invariance is significant.

The goodness of fit values calculated in the constrained model was also quite strong.  $\Delta S-B$  obtained by comparing the two models was calculated as  $X^2=8.22$ ,  $\Delta df=20$ , and  $\Delta CFI=0.00$ . Changes in these values are very low ( $\leq 1\%$ ) or zero. This shows that there is no change in the constrained model, and accordingly, the scale has metric invariance.

**Table 6:** Goodness of Fit Values

| Model  | S-B $\chi^2$ (df, p)     | NFI   | NNFI  | CFI   | IFI   | RMSEA | $\Delta$ S-B $\chi^2$ | $\Delta$ df | $\Delta$ CFI |
|--|--------------------------|-------|-------|-------|-------|-------|-----------------------|-------------|--------------|
| <b>Unrestricted model: Configural Invariance</b> | 1.002,93<br>(306, 0,000) | 0,953 | 0,958 | 0,967 | 0,967 | 0,051 |                       |             |              |
| <b>Restricted model -1: Metric Invariance</b>    | 1009,30<br>(320, 0,000)  | 0,952 | 0,962 | 0,967 | 0,967 | 0,049 | 6,37                  | 14          | 0,00         |

In addition, it is necessary to test whether the structure is affected by the factor loadings fixed to 1 in the model (the definition of the model does this: as a requirement of the structural equation model, the loading of a variable must be fixed to 1) (Cheung & Rensvold, 1999; Buil as cited in Kline, 2005). Buil et al. (2008: 389) For this, the variables with fixed loadings were changed, in other words, the loadings of other variables were set to 1 each time, and retests were performed, and as a result, it was observed that there was no significant change in the goodness of fit values of the structure. This means that the scale measures the same for Turkish and Syrian university students, and the results are comparable.

## 5. Conclusions

In today's business world, managers want their brands not only to be successful in a certain region but also to be internationally acceptable. However, the management of a limited organization and a large-scale organization are different from each other. There are certain challenges associated with doing business in more than one market. The marketing mix of strategic business units such as brands or products is very important in this regard. Many variables must be considered, such as different cultural characteristics, pricing, or the socio-economic structure of the market. As a matter of fact, one of the biggest misconceptions is the perception of failure that different price levels will bring. As a matter of fact, even though businesses have such misconceptions, they are aware of the great advantages that growth will provide them. However, the idea that growth will be a coordinated action with increasing brand value is not as widespread. When the international literature on this subject is examined, it is understood that the researchers try to measure the brand value within a country or cultural group. A limited number of marketing studies have tried to measure the validity of brand equity scales in more than one country (Kim et al., 2004; Yoo & Donthu, 2002; Buil et al., 2008).

In this study, the answers given to the brand equity scale of two groups living together and from different country cultures are investigated. The difficulty in finding the appropriate environment plays an important role in the fact that such research has not been done before. However, the current situation in the Southeastern Anatolia Region of

Turkey is quite suitable for conducting such a scale analysis. Due to the civil war in Syria, there has been an intense migration toward this region. In addition, departments providing education in Arabic are opened in some universities in the region for immigrants.

In this research, a "consumer-based brand equity scale" is applied to students from Turkey and Syria, who were educated at universities in the Southeast Anatolia Region. The aim of this scale, which is previously applied by Buil et al. (2008) in England and Spain and which is found to have measurement invariance in these countries, is this time between two different cultural groups living side by side in Turkey and exposed to the same brand to test for measurement invariance.

As a result of the research, measurement invariance was determined. It has been determined that the scale gives comparable results in these two groups in the context of the Netflix brand. It has been determined that the consumer-based brand equity scale prepared by Buil et al. (2008) based on the literature is configural and metric invariance among Syrian and Turkish university students. Accordingly, the results obtained from this scale structure are the same for Turkish and Syrian University students. Results are comparable.

The most important limitation of our research is that it was tested on university students, which would not reflect the whole of society. The research can be repeated to cover all segments of the population. Also, applying the scale to other brands can provide useful information.

## References

- Aaker, D. (1991). *Managing Brand Equity*. The Free Press.
- Aaker, D. (1996). Measuring brand equity across products and markets. *California Management Review*, 38(3), 102-120.
- Bayram, N. (2018). Measurement Invariance and Multiple Group Analysis. "Is, Guc" *The Journal of Industrial Relations and Human Resources*, 20(1), 1-16.
- Buil, I., de Chernatony, L. & Martinez, E. (2008). A cross-national validation of the consumer-based brand equity scale. *Journal of Product & Brand Management*, 17(6), 384-392.
- Cheung, G.W. & Rensvold, R.B. (2002). Evaluating goodness-of-fit indices for testing measurement invariance. *Structural Equation Modeling*, 9(2), 233-55.
- Cobb-Walgren, C. J., Ruble, C. A., & Donthu, N. (1995). Brand equity, brand preference, and purchase intent. *Journal of advertising*, 24(3), 25-40.

- Davidov, E., Meuleman, B., Cieciuch, J., Schmidt, P., & Billiet, J. (2014). Measurement equivalence in cross-national research. *Annual Review of Sociology*, 40, 55-75.
- Delgado-Ballester, E. (2004). Applicability of a brand trust scale across product categories: A multigroup invariance analysis. *European Journal of Marketing*, 38(5/6), 573-592.
- Eom, H. J. and Lu, Z. (L). (2020). Establishing the measurement invariance in measures of consumers' perceived value. *Asia Pacific Journal of Marketing and Logistics*, 32(5), 1055-1069.
- Firat, D. & Badem, A. C. (2008). Brand Valuation Methods and Reflection of Brand Value to Balance-Sheet. *The Journal of Accounting and Finance*, (38), 210-219.
- Hofstede, (nd). Country Comparison (access date: 01.03.2022). <https://www.hofstede-insights.com/country-comparison/syria,turkey/>
- Horn, J.L. & McArdle, J. (1992). A practical and theoretical guide to measurement invariance in aging research", *Experimental Aging Research*, 18, 117-144.
- Ince, M., & Uygurtürk, H. (2019). A Study about Post Graduate Theses on Brand Identity, Brand Personality, Brand Image and Brand Positioning. *Karabuk University Journal of Social Sciences Institute*, 9(1), 224-240.
- Keller, K. L. (1993). Conceptualizing, measuring, and managing customer-based brand equity. *Journal of Marketing*, 57(1), 1-22.
- Kim, H., Lim, S. J., Crutsinger, C., & Knight, D. (2004). Testing for measurement invariance of fashion brand equity. *Journal of the Korean Society of Clothing and Textiles*, 28(12), 1583-1595.
- Li, F., Xu, L., Li, T. & Zhou, N. (2015). Brand trust in a cross-cultural context: test for robustness of an alternative measurement model. *Journal of Product & Brand Management*, 24(5), 462-471.
- Milfont, T. L., & Fischer, R. (2010). Testing measurement invariance across groups: Applications in cross-cultural research. *International Journal of Psychological Research*, 3(1), 111-121.
- Steenkamp, J. E. M. & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research*, 25, 78-90.
- Strizhakova, Y., Coulter, R. A., & Price, L. L. (2008). The meanings of branded products: A cross-national scale development and meaning assessment. *International Journal of Research in Marketing*, 25(2), 82-93.
- Taleghani, M., & Almasi, M. (2011). Evaluate the Factors Affecting Brand Equity from the Perspective of Customers Using Aaker's Model. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 33(832), 1-13.
- Tang, H. L., Liu, X. & Fu, Q. (2021). Assessing measurement invariance of the CETSCALE in Guangxi, China. *Asia Pacific Journal of Marketing and Logistics*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/APJML-06-2021-0430>
- Vandenberg, R. J. & Lance, C. E. (2000). A review and synthesis of measurement invariance literature: suggestions, practices, and recommendations for organizational research. *Organizational Research Methods*, 3(1), 4-69.
- Yaslioglu, M. M. (2017). Factor analysis and validity in social sciences: using exploratory and confirmatory factor analysis. *Journal of Istanbul University Faculty of Business*, 46(Special Issue), 74-85.
- Yilmaz, V. & Varol, S. (2015). Structural equation modeling with ready-made software: Amos, Eqs, Lisrel. *Dumlupınar University Journal of Social Sciences*, (44), 28-44.
- Yoo, B. & Donthu, N. (2002). Testing cross-cultural invariance of the brand equity creation process. *Journal of Product & Brand Management*, 11(6), 380-398.
- Yu, S. & Hudders, L. (2021). Measurement invariance of the modified brand luxury index scale across gender, age, and countries. *Journal of Fashion Marketing and Management*, Vol. ahead-of-print No. ahead-of-print.