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Adaptation of an emotional intelligence scale for Turkish educators¹

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Schutte et al.'s (1998) emotional intelligence scale was adapted and administered to 177 Turkish educators. Confirmatory and exploratory factor analyses were performed. In order to confirm the authors' model and findings of previous research, one, two, three, and four factor models were examined. It was decided that the one factor model fitted the data better for the selected sample. In addition, gender, age, and job experience of the participants were also investigated in conjunction with their emotional intelligence scores. However, the emotional intelligence scores did not differ for any of these variables. Male and females scored similarly. Also, it was revealed that emotional intelligence scores of the participants did not differ as their age and job experience increases.

Emotional intelligence, reliability, modelling, scale adaptation, gender, Turkey

INTRODUCTION

The introduction of Emotional Intelligence has led to the emergence of various scales and they were studied in relation to various of variables such as sex (Charbonneau and Nicol, 2002; Saklofske, Austin, and Minski, 2003), IQ (Saklofske et al., 2003); leadership (Charbonneau and Nicol, 2002; Humphrey, 2002; Wolff, Pescosolido, and Druskat, 2002); personality (Lopes, Salovey, and Straus, 2003; Newsome, Day, and Catano, 2000); quality of social relationships (Lopes et al., 2003); life satisfaction, and academic achievement (Newsome et al. 2000).

Yet, the psychometric features of these scales are somewhat problematic. For some researchers, the most commonly discussed scale is the *Emotional Intelligence Scale* developed by Schutte, Malouff, Hall, Haggerty, Cooper, Golden, and Dornheim (1998). It is referred to, for instance, by Charbaoneau and Nicol (2002), Petrides and Furnham (2000), and Saklofske et al. (2003). Schutte et al. (1998) have explained the trait of emotional intelligence as a single factor. According to Petrides and Furnham (2000), however, the scale has failed to show emotional intelligence as a single factor. Another confirmatory finding is provided by Saklofske et al. (2003) who go further and add that fewer than four factors would not be appropriate for this particular scale.

Emotional intelligence and its relationship to leadership behaviour have also been studied by researchers. For example, Charbonneau and Nicol (2002) have conducted research to account for adolescents' leadership behaviour and its association to emotional intelligence. They have found that Schutte et al.'s (1998) scale may be problematic for use with adolescents because some items

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may not be well suited for this age group (mean age of $\bar{X} = 14.3$, $SD = 1.1$). They also believe that only some aspects of the emotional intelligence are related to leadership.

PURPOSE OF THE RESEARCH

Based on the literature, the aim of this study, therefore, is to evaluate whether it is possible to utilise Schutte et al.'s (1998) scale with Turkish educators. A further aim is to investigate the psychometric properties of the scale. More specifically, the objectives of the research are (a) to test whether Schutte et al.'s (1998) *Emotional Intelligence Scale* is unidimensional or multidimensional for the Turkish sample; (b) to investigate the internal consistency of the scale for the sample; (c) to test the hypothesis that women are likely to score higher; (d) to test whether scale scores of the sample differ with age; and (e) to test whether scale scores of the sample differ with their job experience.

METHOD

Participants

Participants were 177 administrators (principals and assistant principals) and teachers (152 teachers, 25 administrators), who were serving in public elementary schools in Bolu, Turkey during the 2001-2002 academic year. Bolu is a city of approximately 75,000 people in the northwest of Turkey. Of the sample, 128 (72.3%) were males and 47 (26.6%) were females, and two (1.1%) were not reported. The participants were volunteers and the mean age for the sample was 34.6 years ($S.D. = 8.0$).

Instrument

The *Emotional Intelligence Scale* was developed by Schutte et al. (1998). It is a 33-item scale with a five-point Likert-type scale. As suggested in Salovey and Mayer's theory of emotional intelligence (1990), the instrument has three categories: (a) the appraisal and expression of emotion assessed by 13 items; (b) the regulation of emotion assessed by 10 items; and (c) the utilisation of emotion assessed by 10 items. Participants read each statement and decide whether they 'strongly disagree', 'disagree', are 'undecided', 'agree', or 'strongly agree' with the statement.

Schutte et al. (1998) reported a Cronbach alpha (α) of 0.90 for the internal consistency for adults with mean age of 29.3 ($S.D. = 10.2$) and $\alpha = 0.78$ for test-retest reliability after a two-week interval on the scale for a smaller group drawn from the sample. Schutte et al. (1998) reported predicted validity of $r(63) = 0.32$ for first year GPA of college students, for discriminant validity they reported $r(41) = -0.06$ for the correlation between the scale and SAT scores, and $r(22) = -0.28$ to 0.54 for subscales of NEO Personality Inventory of scores of college students.

Procedure

The *Emotional Intelligence Scale* was translated into Turkish. Since Schutte et al. (1998) allowed the free use of the instrument for research purposes, special permission was not sought. The Turkish version was developed through the process of translation and back translation. Besides the researchers, the translation process was checked by two faculty members who specialised in the Turkish language and had an advanced level of English. When a discrepancy occurred between the colleagues, the researchers considered the comments of the majority of the members and decided on the final wording.

The participants initially completed a demographic survey that recorded their gender, age, and job experience. Later, they completed the Turkish version of the *Emotional Intelligence Scale*. In

order to ensure cooperation of the participants and motivate them, the participants were told that the findings would be used only for research purposes and all information regarding their identity would be kept confidential.

RESULTS

Reliability

In order to examine the internal consistency of the 33 item scale, the Cronbach alpha (α) was found to be 0.88, which is acceptably high and close to what Schutte et al. (1998) found ($\alpha = 0.90$).

The Confirmatory Stage

Three negatively scored items in the *Emotional Intelligence Scale* were re-written in order to score all items in the same direction. Then the analysis was undertaken with a confirmatory factor analysis with maximum likelihood estimation to test the fit of the one factor model to the data. The analysis was run through SPSS version 10.0. The analysis was carried out using raw-score data collected from the 33-item scale. Data were collected on a five-point Likert-type scale and was treated as continuous. The model explained 22.8 per cent of the total variance. The internal consistency for the scale was high ($\alpha = 0.88$). In terms of factor loadings, only item 28 had a loading less than 0.30 (0.25). Furthermore, except for items 8 and 28, all items had loadings higher than 0.40. An examination of the scree plot suggested a one-factor solution and supported Schutte et al.'s (1998) model. Therefore, we decided on the one factor maximum likelihood solution, as it was more understandable, clearer and suggested by the scree plot. Figure 1 showed the scree plot of eigenvalues for these factors. The one factor estimation also seemed to fit the data better.

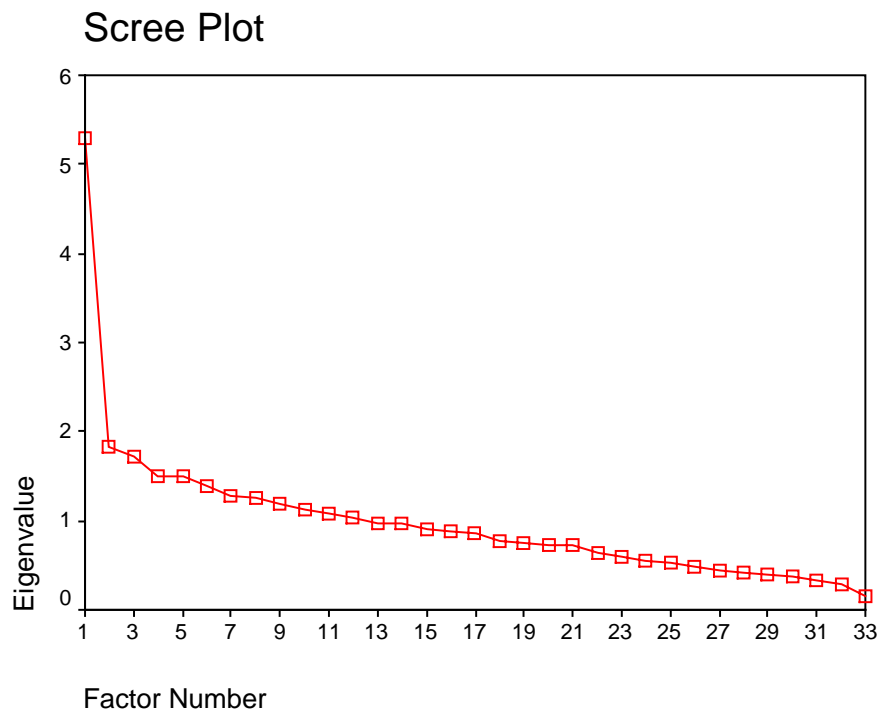


Figure 1. Scree plot of the emotional intelligence scores

The Exploratory Stage

Exploratory factor analysis with principal components estimation and varimax rotation was applied. The analysis revealed 10 factors with eigenvalues greater than unity. However, after extracting the first factor, the percentage of variance and the eigenvalues dropped dramatically (the per cent of variance explained dropped from 22.8 to 5.6 and the eigenvalue estimation from 7.52 to 1.85 from first to second factor).

Since the test of global fit was not significant, the ten-factor solution to the scale was rejected. In order to test the fit of other models and to check agreement between the present data and the findings of Petrides and Furnham (2000) and Saklofske et al. (2003), a two factor solution, followed by three and four factor models, were examined. Principal components extraction with varimax rotation was applied to the analysis of each model.

When the two-factor model was examined, the variance explained increased from 22.8 to 28.4. Internal consistency for item loading of the one factor and two factor models were calculated. Internal consistency for items in the one factor one was $\alpha = 0.86$ ($n = 23$, items 1, 9, 2, 18, 15, 23, 25, 16, 22, 17, 8, 21, 26, 20, 19, 5, 6, 3, 12, 31, 24, 29) whereas there was an α of $=0.71$ ($n = 10$, items 27, 32, 30, 28, 33, 13, 14, 7, 4, 11) for items in two factor model. On the other hand, when the items were checked in terms of their meaning, there was no meaningful grouping among items that occurred in each factor.

A three-factor solution was also undertaken. The variance explained increased from 28.4 to 33.8 per cent with three-factor solution. Internal consistency for items in factor one was an α of $= 0.82$ ($n = 15$: items 24, 23, 3, 2, 22, 15, 5, 1, 21, 28, 20, 12, 26, 31, 6) whereas the α was $=0.72$ ($n = 8$, items 16, 9, 18, 8, 29, 17, 19, 25) for items in factor two, and $\alpha = 0.71$ ($n = 9$, items 27, 32, 13, 7, 30, 14, 11, 33, 4) for items in factor three. However, there was still no meaningful grouping among items which formed each factor.

Finally, a four-factor extraction was run. In this model, the variance explained increased to 38.6 per cent. Internal consistency for items in factor one was an α of $= 0.82$ ($n = 16$, items 9, 18, 8, 25, 1, 16, 19, 5, 11, 26, 29, 17, 4, 20, 6, 10) whereas there was an α of $=0.78$ ($n = 9$, items 23, 22, 12, 21, 24, 2, 3, 1, 3, 15) for items in factor two, an α of $=0.65$ ($n = 5$, items 13, 27, 32, 7, 14) for those in factor three and there was an α of $=0.55$ ($n = 3$, items 33, 28, 30) for items in factor four. As in the previous models, items that formed each factor did not establish a meaningful grouping.

Consequently, although exploratory factor analysis indicated the possibility of a ten-factor model, the test of global fit revealed a non-significant fit and the scree test suggested a one-factor model. Two, three and four factor models were also applied. However, items that loaded on each factor failed to establish meaningful groups and there was no reasonable discrepancy between the groups in either of two, three and four factor models.

Emotional Intelligence and Individual Differences

In the second part of this paper, scores of the Turkish educators were investigated in terms of their gender, age, and job experience. Table 1 presents the demographic data obtained from the sample.

The effects of gender, age and job experience on emotional intelligence scores were investigated through univariate analysis of variance. The model did not reveal significant results ($F = 0.454$, $p = 0.996$). Contrary to expectation, the results indicated a non-significant gender effect on the scores ($F = 0.113$, $p = 0.737$), suggesting that gender was not a determining factor for emotional intelligence in the Turkish adult educators sampled. The mean for males was 76.76 ($n = 122$) and for females 71.54 ($n = 45$).

Age was also found to be non-significant in its effect on the scores of the individuals ($F = 0.588$, $p = 0.739$). It appeared that scores based on the age of the participants did not differ.

Similarly, job experience did not have a significant relationship with emotional intelligence scores ($F = 0.313$, $p = 0.929$). Therefore, emotional intelligence scores did not increase as the job experience of the individuals increased.

Table 1. Participants' demographic information

Variables	n	\bar{X}	S.D.
Gender			
Female	45	76.76	18.43
Male	122	71.54	29.98
Missing	2		
Age			
20-25	26	76.33	24.79
26-30	28	73.64	10.24
31-35	45	74.31	40.91
36-40	33	70.81	24.75
41-45	24	74.75	16.59
46-50	18	64.83	20.86
51 and over	2	65.50	4.95
Missing	1		
Years of experience			
1-5	48	77.27	14.02
6-10	41	71.00	21.52
11-15	24	71.05	16.06
16-20	16	79.17	53.62
21-25	25	70.50	34.72
26-30	6	72.80	15.47
31 and over	2	68.00	16.52
Missing	15	68.00	1.41

DISCUSSION

The result of exploratory and confirmatory factor analysis of the Turkish version of the *Emotional Intelligence Scale* indicates an agreement with Schutte et al.'s (1998) findings, although the total variance explained by the model is not large. In other words, the fit of data to Turkish adults suggests a single factor model. On the other hand, the scale may also be applied to other samples to test fit of the one factor model to the scale. This would also provide a better understanding of the validity of the trait. The Turkish version of the *Emotional Intelligence Scale* has also revealed a satisfactory level of internal consistency.

Contrary to previous research, scale scores of the individuals do not differ with respect to gender. One possible reason for this non-significant difference may be that the number of the males in the sample was almost three times greater than the number of the females. Moreover, culture may be another reason for such similarity. It is known that when it comes to psychological properties, culture may lead to gender differences. Differences that occur between males and females in one culture do not necessarily mean that such differences also occur in other cultures (Cakan, 2003). The gender differences that have been observed in emotional intelligence in previous studies result from studies conducted on individuals who live in Western cultures (Saklofske et al., 2003; Schutte et al., 1998).

Similar non-significant differences have been revealed for individuals of different ages and job experience. Therefore, the emotional intelligence of the individuals does not appear to increase as their age and job experience increase.

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