

## The Validity and Reliability of Propensity to Trust Scale

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### Abstract

*In this study, it is aimed to assess the validity and reliability of propensity to trust scale developed by Frazier, Johnson, & Fainshmidt (2013) by adapting to Turkish. In this regard, explanatory factor analysis, confirmatory factor analysis, item analysis, internal consistency coefficients, and validity analyses are conducted with the data obtained from two different samples comprised of students (n = 287) and employees (n = 323) in Turkey. According to this, explanatory factor analysis results showed single factor construct of the scale. Moreover, confirmatory factor analysis findings also revealed single factor construct of this scale ( $\chi^2/sd = 1.345$ ;  $p = .261$ ; CFI = .999; TLI = .998; IFI = .999; RMSEA = .033; SRMR = .008). Reliability analyses results showed Alpha and Omega coefficients indicate that the scale is reliable. Regarding the validity of the scale discriminant validity, convergent validity, and criterion related validity related assessments revealed the validity of the scale. The results of explanatory factor analysis, confirmatory factor analysis, validity, and reliability analyses findings revealed that Turkish version of propensity to trust scale is a valid and reliable instrument to use in studies in Turkey.*

**Keywords:** *Propensity to Trust, Validity, Reliability, Exploratory Factor Analysis, Confirmatory Factor Analysis*

## Güven Eğilimi Ölçeğinin Geçerlik ve Güvenirlik Analizi

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### Öz

Bu çalışmada, Frazier, Johnson, & Fainshmidt (2013) tarafından geliştirilmiş olan güven eğilimi ölçeğinin Türkçe'ye uyarlanarak geçerlik ve güvenirliliğinin incelenmesi amaçlanmaktadır. Bu doğrultuda Türkiye'de öğrenciler (n = 287) ve çalışanlardan (n = 323) oluşan iki farklı örneklemeden elde edilen veri ile açıklayıcı faktör analizi, doğrulayıcı faktör analizi, iç tutarlılık katsayıları ve geçerlik analizleri gerçekleştirilmiştir. Buna göre yapılan açıklayıcı faktör analizi sonuçları ölçeğin tek faktörlü bir yapısı olduğunu göstermiştir. Ayrıca gerçekleştirilmiş olan doğrulayıcı faktör analizi bulguları da ölçeğin tek faktörlü bir yapısı olduğunu ortaya koymuştur ( $\chi^2/sd = 1.345$ ;  $p = .261$ ; CFI = .999; TLI = .998; IFI = .999; RMSEA = .033; SRMR= .008). Güvenirlik analizleri bulguları ise alfa ve omega katsayılarının ölçeğin güvenilir olduğuna işaret ettiğini belirlemiştir. Ölçeğin geçerliğine yönelik olarak gerçekleştirilen ayrışma geçerliği, birleşme geçerliği ve ölçüt bağımlı geçerliğe yönelik değerlendirmeler ise ölçeğin geçerliğini ortaya koymuştur. Yapılan açıklayıcı ve doğrulayıcı faktör analizleri ile geçerlilik ve güvenirlik analizlerinin sonucunda elde edilen bulgular güven eğilimi ölçeğinin geçerli ve güvenilir olarak değerlendirilebileceğini ortaya koymakta olup Türkiye'de yapılacak olan arařtırmalarda kullanılabilceğini göstermektedir.

**Anahtar Kelimeler:** Güven Eğilimi, Geçerlik, Güvenirlik, Açıklayıcı Faktör Analizi, Doğrulayıcı Faktör Analizi

## Introduction

Trust is a vital element in individuals' both personal and work lives. Trust has a growing importance in today's business setting in particular with high competition in global environment, advanced technologies in production, information, and communication, changes of organization structures, different work practices, and various generational approaches to employment (Bachmann and Zaheer, 2006; Frazier, Johnson, and Fainshmidt, 2013).

In recent years especially as a consequence of the gaining importance in organizational life, trust has been studied extensively (Mayer and Davis, 1999). Trust is a fundamental element of employer-employee relationship and is an important factor for effective relations (Colquitt, Scott, and LePine, 2007, p.918). Research on trust reveals that trust has several outcomes in organizational functioning; it leads to increased job satisfaction, advanced job performance, increased organizational commitment, and raised organizational citizenship behaviors (Frazier et. al., 2013). In connection with its significance to various behaviors and attitudes, understanding the dispositional factors for development of trust becomes noteworthy.

Propensity to trust is an individual's disposition to trust (Gill, Boies, Finegan, and McNally, 2005, p. 287). According to Whitener, Brodt, Korsgaard and Werner (1998) this disposition is based on the expectation about the individuals' trustworthy actions. Propensity to trust levels can differ according to personality, culture, and experiences (Mayer, Davis and Schoorman, 1995). Moreover, individuals with high level or propensity to trust will also have high level of trust for other individuals (Whitener et. al., 1998).

Propensity to trust has various outcomes concerning both individual and work such as well-being, social exchange, organizational commitment, organizational citizenship behavior, job satisfaction, organizational support, and most likely trust itself (Bernerth and Walker, 2009; Nambudiri, 2012; Poon, Mohd Salleh and Senik, 2007; Van Dyne, Vandewalle, Kostova, Latham, and Cummings, 2000). Even though propensity to trust has significant effects on various attitudes and behaviors, and is an im-

portant antecedent of trust, it has not received much attention in the literature. In consequence of an unaddressed concept, it has not attracted much attention among scholars, and as a result, a brief, valid, and reliable instrument is unavailable in the literature to measure the construct.

In this regard, understanding the development and formation of trust is essential. In this context, our aim is to reveal the validity and reliability of propensity to trust scale in two Turkish samples in order to make available in Turkish context. Accordingly, we examine the factorial structure and reliability of the scale in the first step. Next, we confirm this structure by conducting confirmatory factor analysis in a second sample. Moreover, we check validity of the scale by examining convergent validity, discriminant validity, and criterion validity. In addition, we assess the reliability of the scale in the second sample as well. Thereby we expect to make a contribution to the literature by providing this scale regarding propensity to trust. Regard to this, with this study by validating the propensity to trust scale, we expect to be useful for the researchers who would like to study further and make a contribution to the field and understanding of trust and formation of trust in organizational life.

## **Background**

Trust is conceptualized with various definitions due to the different approaches (Colquitt et. al., 2007), this leads to confusion about the construct, antecedents, and outcomes of trust (Gill et. al., 2015). With their framework Mayer et. al. (1995) shed light on the development of interpersonal trust.

According to this integrative and extensive model of trust, two parties' characteristics are taken into consideration, trustor and trustee. The model suggests that trust is formed by trustor's perception of the trustee and trustor propensity to trust (Ashleigh, Higgs and Dulewicz, 2012), trustor propensity to trust and trustee's perceived trustworthiness are the antecedents to trust. In this framework, high levels of propensity to trust and perceived trustworthiness lead to trust which is the willingness to be vulnerable to the actions of the trustee whereas as a result the trustor takes more risks in this relationship (Mayer et. al., 1995) (see Figure 1).

Several characteristics of the trustee are identified in the literature (e.g., Butler, 1991; Cook and Wall, 1980; Ring and Van de Ven, 1992; Sitkin and Roth, 1993; Mishra, 1996), however the proposed model attributes of the trustee are mostly explanatory (Mayer et. al, 1995; Heyns and Rothmann, 2015). The model suggests that perceived trustworthiness of the trustee is examined in three factors, ability, benevolence, and integrity (Mayer et. al., 1995).

Ability is that group of skills, competencies, and characteristics that enable a party to have influence within some specific domain (Mayer et al., 1995, p.717) whereas in trust literature competence and expertise are also used interchangeably (Mayer et. al., 1995). Benevolence is the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive (Mayer et. al., 1995, p. 718). And lastly integrity is the trustor’s perception that the trustee adheres to a set of principles that the trustor finds acceptable (Mayer et. al., 1995, p. 719). In previous studies instead of integrity, value congruence and character were used as synonyms (Mayer et. al., 1995).

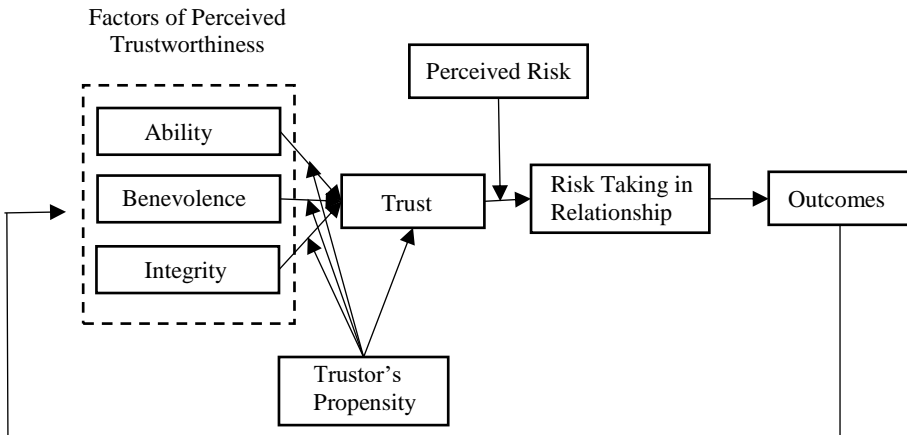


Figure 1. Integrative Model of Trust (Mayer, Davis, & Schoorman, 1995, p. 715)

Trust is conceptualized as a trait by several researchers in the literature (e.g. Rotter, 1967; Mayer et. al., 1995). Rotter (1971) addressed trust as a generalized expectancy about others trustworthy behavior and this can be

assessed as a permanent personality attribute which does not change dependent on time or place. According to Rotter (1980) individuals with high propensity to trust are also trustworthy people.

Propensity to trust is the dispositional factor that establishes the individual to trust or not (Van Dyne et. al., 2000). This tendency is more salient in situations when the trustee is not closely known, on the other hand it also serves as a cognitive leap even in the situation where the information is available about the trustee (Colquitt et. al., 2007). Lewis and Weigert (1985) stated that trustworthiness is only the beginning for trust, however without trust propensity, trust will not be established.

Trust literature shows that propensity to trust of individuals has significant outcomes in their attitudes and behaviors. For example, Van Dyne et. al. (2000) revealed in their study that propensity to trust has a positive relationship with organizational citizenship behavior. According to this if a person has trusting dispositions than this individual will also behave in positive behaviors and less negative behaviors (Van Dyne et. al., 2000, p. 6). In their meta-analysis, Colquitt et. al (2007) also found that trust propensity has a positive correlation with organizational citizenship behaviors.

In their meta-analysis Dirks and Ferrin (2002) showed that propensity to trust is related to trust in leadership. Colquitt et. al (2007) conducted a meta-analysis study on trust, trustworthiness, and trust propensity and revealed that trust propensity is positively related to trust and risk taking. Colquitt et. al (2007) also found that trust propensity is positively related with ability, benevolence, and integrity whereas they showed that it is negatively correlated with counterproductive work behaviors.

Poon et. al. (2007) revealed that there are positive and significant relationships between propensity to trust with job satisfaction and perceived organizational support. They also showed that propensity to trust moderates the relationship between organizational support perceptions of employees and their job satisfaction levels.

Bernerth and Walker (2009) found that employees' propensity to trust has a significant and positive effect on employees' perceptions of social exchange. They also asserted that in the presence of more trusting manag-

ers and employees, employees' perceptions of positive relationships increase whereas the situation is reverse, the employees perceive social exchange less positively.

Mahony, Klimchak and Morrell (2012) showed in their study that propensity to trust has a positive and significant effect on employees' job performance. Colquitt et. al (2007) revealed in their meta-analysis study that there is a positive and significant correlation between trust propensity and task performance.

Nambudiri (2012) found that propensity to trust has positive relationships with affective commitment, and normative commitment whereas the relationship with continuance commitment was significant at .05 level. Moreover, Colquitt et. al. (2007) showed a positive correlation between trust propensity and affective commitment in their meta-analysis study.

## **Method**

In this research, we conducted two studies in two different samples. In the first study, we assessed the factorial structure and reliability of the scale. In the second study we conducted a confirmatory factor analysis, examined the validity and reliability of the scale further.

## **Samples**

First sample was comprised of university students. We distributed 300 questionnaires and 290 of them were returned however, 287 of them were useful for data analysis. There were 149 females and 138 males in the sample. The mean age was 21.85 years.

Second sample comprised of employees working in private sector in Adana. 330 questionnaires were distributed in total, and 323 of them were returned with full data. There were 172 females and 151 males in the sample. The mean age was 40.56 years and the mean job tenure was 17.02 years. The participants' education level was mostly undergraduate level (%89).

## Data Collection Tools

In order to assess the validity and reliability of the propensity to trust scale in Turkish samples we used the similar variables in the original study which are propensity to trust, ability, benevolence, integrity, and trust.

Propensity to trust is assessed using with the scale developed by Frazier, Johnson and Fainshmidt (2013). This measure has a one-factor structure and consists of four items. In their study Frazier et. al. (2013) reported internal consistency coefficients of .89 and .88.

In order to measure ability, benevolence and integrity we used the items developed and shortened by Mayer and Davis (1999). We examined ability by using six items. In their study, Mayer and Davis (1999) reported Alphas as .85 and .88 in various samples. Benevolence is measured using five items and they reported Alphas .87 and .89 in their study. In addition, we examined integrity by using six items. Mayer and Davis (1999) found Alphas as .82 and .88 in their study.

Trust is examined using the scales developed by Schoorman, Mayer and Davis (1996) and taken from the study conducted by Mayer and Davis (1999). In their study internal consistency coefficient are reported as .59 and .66.

In this study 5-point Likert scale is used ranging from “1 = strongly disagree to 5 = strongly agree” as response categories.

## Statistical Analyses

The statistical analyses are conducted using R Studio version .0.99.903 based on R Version 3.3.1 (R Core Team, 2016). We utilized several R core packages with psych (Revelle, 2017), Qgraph (Epskamp, Cramer, Waldorp, Schmittmann, and Borsboom, 2012), SemPlot (Epskamp with Stuber, 2017), and Lavaan (Rosseel, 2012).



## Results

### Study 1

#### 1. Explanatory Factor Analysis

In order to assess the construct validity of the scale, we utilized explanatory factor analysis. This is a widely used method to show construct validity of a scale with a different purpose or sample (Çokluk, Şekercioğlu, & Büyüköztürk, 2012, p. 177). We used principle components analysis method for extraction and varimax method for rotation; however, the analysis could not rotate the solution as only one component was extracted. Results showed that KMO (Kaiser-Meyer-Olkin) Measure of Sampling Adequacy was .833 and Bartlett's Test of Sphericity was  $\chi^2 = 562.280$ ;  $df = 6$ ;  $p < .0001$ . Explanatory factor analysis results revealed one factor structure of the scale as it was in the original one. As seen on Table 1 factor loadings were .858, .857, .871, and .823, and the 72.63% of total variance was explained by this factor.

*Table 1. Factor Loadings of the Propensity to Trust Scale*

Propensity to Trust	Factor Loadings
PT1	.858
PT2	.857
PT3	.871
PT4	.823
Explained Variance: % 72.628	
KMO: .833	
Bartlett's Test of Sphericity: $\chi^2 = 562.280$ ; $df = 6$ ; $p < .0001$	
Principle Component Analysis	

#### Reliability Analysis

In order to assess the reliability of the scale, we utilized both item analysis and internal consistency coefficients. As seen in Table 2, corrected item-total correlations were between .688 and .758 and deleting any items from the scale did not increase Cronbach's alpha coefficient.

For assessing internal consistency of the scale, we used both Cronbach's alpha and McDonald's omega coefficients. According to the results, alpha coefficient was .874 whereas omega coefficient was .875.

*Table 2. Reliability Analysis of the Propensity to Trust Scale*

Propensity to Trust Scale Items	Corrected Item-Total Correlation	Alpha If Item Deleted	Mean	Standard Deviation
PT1	.738	.836	4.199	.844
PT2	.737	.836	4.303	.795
PT3	.758	.827	4.331	.809
PT4	.688	.855	4.441	.751

## Study 2

### 1. Confirmatory Factor Analysis

In order to confirm the results of explanatory factor analysis, we conducted confirmatory factor analysis using maximum likelihood method. As seen in Table 3 confirmatory factor analysis results showed a very good model fit,  $\chi^2 = 2.690$ ;  $df = 2$ ;  $p < .261$ . Furthermore, model fit indices are obtained as CFI = .999; TLI = .998; IFI = .999; RMSEA = .033; and SRMR = .008. As shown in Figure 2, standardized regression weights were .832; .854; .850; and .855.

*Table 3. Confirmatory Factor Analysis Model Fit Results*

Fit Index	Model Results	Reference Values <sup>1</sup>
$\chi^2$ (CMIN)	2.690	$0 \leq \chi^2 \leq 2df$
df	2	-
$\chi^2/df$ (CMIN/df)	1.345	$0 \leq \chi^2/df \leq 2$
p value	.261	-
CFI	.999	.90 < CFI
TLI	.998	.90 < TLI
IFI	.999	.90 $\leq$ IFI $\leq$ .95
RMSEA	.033	.00 $\leq$ RMSEA $\leq$ .05
SRMR	.008	.00 $\leq$ SRMR $\leq$ .05

$\chi^2$ =Chi-Square, df=Degrees of Freedom, RMSEA= Root Mean Square Error of Approximation, IFI= Incremental Fit Index, TLI = Tucker Lewis

Index, CFI = Comparative Fit Index, SRMR = Standardized Root Mean Square Residual, <sup>1</sup>Reference values adapted from Bayram, 2010; Meydan & Şeşen, 2011, Hair, Black, Babin, & Anderson, 2014.

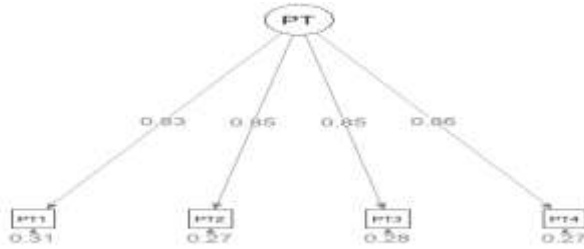


Figure 2. Propensity to Trust Scale Confirmatory Factor Analysis Results

## Validity Results

In order to assess construct validity, we examined convergent validity, discriminant validity, and criterion validity. For establishing convergent validity, factor loadings and average variance extracted (AVE) values should be higher than .50 and composite reliability (CR) coefficients should be higher than .70 (Hair et. al., 2014, p. 605). According to our analysis results, as seen in Figure 2 factor loadings are between .832 and .855 that are higher than .50. Moreover, as shown in Table 4, AVE values are higher than .50 whereas CR coefficients are higher than .70. All these results reveal that convergent validity is ensured for the scale.

In order to establish discriminant validity, AVE values should be higher than MSV values and the square root of AVE values should be higher than the correlations between the variables (Hair et. al., 2014, p. 631). According to our analysis results, as seen on Table 4, AVE values are above .50 and square root of AVEs which are shown in diagonals are also higher than the correlations between the variables. These findings show that discriminant validity is ensured for this scale.

For the purpose of establishing criterion validity, the relationships between the variables should fulfil the expectations (Hair et. al., 2014, p. 633). According to our findings, as seen in Table 4, the correlations of propensity to trust with ability, benevolence, integrity, and trust are positive as

expected regarding the theoretical background. These results revealed that criterion validity is also established for the scale.

*Table 4. Means, Standard Deviations, Cronbach's Alphas, McDonald's Omegas, Composite Reliabilities, AVEs, MSVs and Correlations of the Scales*

Variables	Items	Mean	SD	$\alpha$	CR- $\omega$	AVE	MSV	1	2	3	4	5
<b>Propensity to Trust</b>	4	3.892	.824	.910	.911	.718	.230	<b>.848</b>				
<b>Ability</b>	6	3.795	.792	.922	.922	.662	.320	.480**	<b>.814</b>			
<b>Benevolence</b>	5	3.868	.829	.914	.914	.680	.304	.468**	.516**	<b>.825</b>		
<b>Integrity</b>	6	3.812	.923	.928	.928	.684	.320	.430**	.566**	.551**	<b>.827</b>	
<b>Trust</b>	4	3.883	.889	.890	.891	.671	.246	.439**	.479**	.481**	.496**	<b>.819</b>

$\alpha$ =Cronbach's Alpha Coefficient, CR- $\omega$ =Composite Reliability, McDonald's Omega Coefficient, AVE=Average Variance Extracted, MSV=Maximum Shared Variance, SD=Standard Deviation, \*Diagonal values are the square root of AVEs, n = 323, \*\*p<.01.

### Reliability Analysis

For the second sample, item analysis revealed that corrected item-correlations are between .784 and .803 (see Table 5). Furthermore, the results showed that deleting items from the scale do not rise the Cronbach's alpha coefficient. In addition to item analysis, internal consistency of the scale was also assessed using Cronbach's alpha (Cronbach, 1951) and McDonald's omega (McDonald, 1999) coefficients. As seen in Table 4 Cronbach's alpha was .910 whereas McDonald's omega was .911. These results revealed that reliability of the scale is established with these analyses.

*Table 5. Reliability Analysis of the Propensity to Trust Scale*

Propensity to Trust Scale	Corrected Item-Total Correlation	Alpha If Item Deleted	Mean	Standard Deviation
PT1	.784	.889	3.749	.966
PT2	.800	.882	3.833	.944
PT3	.800	.879	3.932	.917
PT4	.803	.856	4.056	.883

## Discussion

In this study, the aim was to investigate the validity and reliability of the propensity to trust scale (Frazier et. al., 2013) in two samples in Turkey. In first study, we conducted explanatory factor analysis to reveal the factor structure of the scale and the results showed one factor structure as in the original scale. According to these results factor loadings were above .80 and statistically significant. These research findings are consistent with earlier studies in several contexts (e.g.Frazier et. al., 2013).

We also examined the reliability of this scale using both item analysis and reliability coefficients Cronbach's alpha and McDonald's omega in the first sample. Both coefficients were above .70 and their values were .874 and .875. respectively. Moreover, corrected item-total correlations resulted between .688 and .758, which are above the cutoff value .30 (Nunnally & Bernstein, 1994, p. 305; Robinson, Shaver, & Wrightson., 1991, p. 31).

In the second study we conducted confirmatory factor analysis, established the validity with convergent validity, discriminant validity, criterion validity and reliability of the scale with item analysis and reliability coefficients. Confirmatory factor analysis results showed excellent fit and above .80 standardized regression coefficients that are statistically significant, and confirmed one factor solution concurrent with explanatory factor analysis. The findings regarding convergent validity, discriminant validity, and criterion validity ensured the validity of the scale. We further examined the reliability of the scale in the second sample. The item analysis revealed values between .784 and .803 that are above .30 and reliability coefficients resulted .910 and .911 that are above .70 in this sample as well. These results showed satisfactory values that are compatible with the original study (e.g.Frazier et. al., 2013).

This study is not without limitations. Even though we utilized two different samples, the participants were comprised of only students and private sector employees from Adana. In future studies, the researchers can conduct studies with samples from different cities in Turkey with employees from different occupations.

This study revealed that propensity to trust scale is one factor instrument with very good reliability results. Moreover, the study showed that the validity of this scale is also established. These findings suggest that propensity to trust is a valid and reliable instrument for utilizing studies in Turkey.

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