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Adaptation of Youth Innovational Skills Measurement Tool for Turkish Usage

Gençlere Yönelik İnovasyon Becerileri Ölçme Aracının Türkçe'ye Uyarlanması

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Keywords

1. Innovational Skills
2. Vocational Schools
3. Leadership
4. Proactivity
5. Ingenuity

Anahtar Kelimeler

1. İnovasyon Becerileri
2. Meslek Liseleri
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Abstract

Purpose: The purpose of this study is to adapt Youth Innovation Skills Measurement Tool (YISMT) into Turkish language. The YISMT is a scale developed by Chell (2009) to contribute the improvement of the skills and attitudes which young people need if they are to become the innovators of tomorrow.

Design/Methodology/Approach: This study is a scale adaptation process which was firstly validated through translation and back-translation procedures. Secondly, exploratory and confirmatory factor analyses were conducted to examine its construct validity.

Findings: Factor analyzes results demonstrated that the new scale had 25 items with 6 factors.

Highlights: The Youth Innovation Skills Measurement Tool is an instrument to support the development of the skills and attitudes which young people require if they are to become the innovators of future. This research constitutes the adaptation process of the Youth Innovation Skills Measurement Tool into Turkish, which will contribute to revealing the innovation capacities of vocational and technical high schools.

Öz

Çalışmanın amacı: Bu çalışmanın amacı geleceğin yenilikçileri olacak gençlerin ihtiyaç duyduğu beceri ve tutumların gelişimini desteklemek için Chell (2009) tarafından geliştirilen "Gençlere Yönelik İnovasyon Becerileri Ölçme Aracı'nın" (YISMT) Türkçe'ye uyarlanmasıdır.

Materyal ve Yöntem: Bu bir ölçek uyarlama çalışmasıdır. Buna göre ilk aşamada orijinal ölçek maddeleri Türkçe'ye çevrilerek dil geçerlilik çalışmaları yapılmış, ikinci aşamada ise yapı geçerliğini ölçmek için açımlayıcı ve doğrulayıcı faktör analizleri yapılmıştır.

Bulgular: Faktör Analizi sonuçları, uyarlanan yeni ölçeğin 6 faktörlü 25 maddeye sahip olduğunu göstermiştir.

Önemli Vurgular: Gençlere Yönelik İnovasyon Becerileri Ölçme Aracı, gençlerin yarının yenilikçileri olmaları için ihtiyaç duydukları beceri ve tutumların gelişimini destekleyen bir araçtır. Bu çalışma, mesleki ve teknik liselerin inovasyon kapasitelerini ortaya çıkarmak için katkıda bulunacak olan Gençlere Yönelik İnovasyon Becerileri Ölçme Aracı'nın Türkçe'ye uyarlanma sürecini oluşturmaktadır.

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INTRODUCTION

The world of the 21st century is mainly characterized by an enormous technological development, leading to a new status in the industry: Industry 4.0 (Binner, 2014). The revolution of the industry is of great importance for many countries since it is a systemic change that pertains to a multitude of new technologies with new forms of applications and innovational skills. Thus, industry 4.0 is vital for innovation skills and poses a critical factor in the competition between countries (Pfeiffer, 2015). Accordingly, many countries tend to change their policies to identify the orientation of new industrialization. Those countries' initiatives are renewing the social partnership, developing co-determination, and managing a more vital workplace with skilled employees (Pfeiffer, 2015). Institutions may benefit from employees' innovational skills to produce valuable goods, valuable services and divergent solutions to problems. Besides, innovation is not solely an issue of commercialization of products but also an issue of guiding educational systems. It is seen that commercial companies, innovating organizations and educational institutions are aware of this necessity so that they keep on finding ways to improve innovative skills (Borras & Edquist, 2015).

The rising number of indigent young students in developing countries transpires as a challenge to overcome. Many young people can only find low-quality jobs under unpleasant circumstances with limited options (OECD, 2018). Therefore, work and skills-based education are one of the aims of those countries. They try to accomplish this by updating their education system, fostering an economically, environmentally, and socially sustainable development (OECD, 2018; Tripney et al., 2013). The 21st century business and industry 4.0 necessitate information and innovational skills to be generic and targeted to achieve the favorable outcomes of the education system (Akgunduz & Mesutoglu, 2021; Rowe et al., 2015). Skills for innovation or innovational skills are gained with a qualified education system. This education should involve innovational skills such as technical skills, academic skills, generic skills, soft skills, leadership and digital age literacy (OECD, 2017). For instance, TVET (Technical and Vocational Education Training) system prepares students through a comprehensive education system that supports students and workers' creativity and innovational skills (Fernández, 2020). TVET schools focused on preparing students for work-life; however, although that remains a priority, the education system has shifted its focus to enhancing students' creativity and innovativeness. The focus helps enhance students' employability and increases the chances of establishing businesses and creating employment (Poortman et al., 2011). Innovational skills help students fulfil their aspirations for excellence regardless of gender and provide opportunities in the business environment (Nerstrom, 2017). TVET system offers various school-based and business based environments with the support of those innovational skills. Students both apply their experiences and relate them with their professional knowledge base. Thus, vocational schools' education is pursued with an occupational practice, including technical skills and students' abilities. Students have the chance to combine their different types of knowledge with their profession (Baartman et al., 2018). TVET schools focused on preparing students for work-life; however, although that remains a priority, the education system has shifted its focus to enhancing students' creativity and innovativeness. The focus helps enhance students' employability and increases the chances of establishing businesses and creating employment (Poortman et al., 2011).

Innovation literacy, used as an umbrella term to define innovation concept in education (Sahin et al. (2014), is the ability of students to identify agreeable decisions through processes and work together in a synchronized way with each other by making discussions. Innovation literacy is also the content of comprehending and identifying materials included in innovational phrases and underpins STEM (Science, Technology, Engineering, and Mathematics) (Erdogan et al., 2013). Collaborating, a sense of belonging to a group, and solving problems by accepting the rules also provide innovation literacy (Sahin et al., 2014). A survey conducted by Sutanto (2017) indicates that innovation requires a broad range of skills and showed that innovative employees (those in innovative organizations) use all kinds of skills in their jobs compared to non-innovative counterparts. The innovative skills that distinguish innovation from non-innovative employees include creativity, critical thinking, and the ability to present new ideas (effective communication). Sutanto (2017) also indicates that the education system's role in innovation is defined by subject-based skills, critical thinking, creativity, behavioral and social skills, including self-confidence, collaboration, and persuasion.

The revelation of innovational skills is crucial for training and education systems within the concept of 21st century (Vona & Consoli, 2015). In the 21st century, institutions and teachers need to understand what it takes to improve students' innovational skills. An effective education system is critical to enhancing students' creativity and innovational skills (Dziallas & Blind, 2019). Understanding the factors that contribute to innovational skills, students' innovativeness, and creativity is an essential aspect in determining the student's ability and, therefore, enhancing their innovational ability will be much more easier.

To contribute the needs of having such skills in this century and their development in the education system, this study was conducted to adapt the previously developed (The Youth Innovation Skills Measurement Tool – YISMT) (Chell, 2009) scale to Turkish language and culture in order to find out how young people are regarding their innovative skills. YISMT measures the innovational skills of young learners by aiming to reveal attributes included in the innovation process, which are identifying the innovative capability of young people, searching for ways of finding out this capacity and understanding their innovative behavior.

METHOD/MATERIALS

This study adapted an instrument to identify the generic skills that underpin innovative skills of young people and form a set of attributes clearly linked to the innovation process. To determine the psychometric features of the scale, the latest version of

the scale was applied to the study group and exploratory and confirmatory factor analyses were done to uncover the implicit structure of the scale and to verify the original structure of the scale.

The Model of the Research

First, an initial EFA (Exploratory factor) analysis) was performed to reveal the factor structure of the scale. EFA is a statistical method employed to increase the reliability of the scale by identifying inappropriate items that can be removed and the dimensionality of constructs by examining the existence of relationships between items and factors when the information of the dimensionality is limited (Netemeyer, Bearden & Sharma, 2003). The preliminary analyses demonstrated that the original tools' factor number and the new scales' factor structure did not match. Therefore, a final EFA was conducted to get more reliable results. Finally, CFA (Confirmatory factor analysis) has been performed to verify the factor structure of the scale determined by the 'final EFA', since CFA is a statistical technique frequently used to test whether measurement instruments are consistent with data (Graham, Guthrie, & Thompson, 2003) and to designate how a test might be scored using subscales, i.e. the number of factors is indicative of the number of subscales, the pattern of item-factor relationships (which items load on which factors) indicate how the subscales should be scored (Brown & Moore, 2012).

Participants

In the present study, data obtained in only one round of data collection have been split randomly between the EFA and CFA analyses. In other words, the total of 405 cases with no missing data on the items of the scale was split into two halves randomly. Data were obtained from 405 students in two TVET schools, with the majors included the electric-electronic department, information technologies, machinery technology, furniture department and chemistry department. (Wegener & Fabrigar, 2000). Ozturk and Ficici (2014) state that "When another round of data collection from the same population is difficult, keeping the sample size large in the first round for the purpose of using the data for both EFA and CFA might save time and resources". To cross-validate, the final version of the scale, the two halves of the data served as two separate datasets from two different samples of the same population. In other words, 405 cases with no missing data on the scale items were split randomly, and the two halves were saved as two separate datasets. Therefore, the factor structure was tested and shaped through EFA on one sample (set of 202 cases) by performing a CFA on a second (set of 203 cases) independent sample. In addition that participants' details are given below.

Table 1. Characteristics of the Participants

Department	Grade	N	Percentage
Electric-Electronic	10	72	%17.78
Information Technologies	11	82	%20.25
Machinery Technology	11	109	%26.91
Furniture	12	38	%9.38
Chemistry	11	104	%25.68

Original Scale

The Youth Innovation Skills Measurement Tool aims to address a gap in educational assessment by offering a robust measure of young people's innovational skills. The tool aims to measure five generic skills that underpin innovative behavior and form a set of attributes clearly linked to the innovation: (1) creativity (imagination, connecting ideas, tackling and solving problems, curiosity); (2) self-efficacy (self-belief, self-assurance, self-awareness, feelings of empowerment, social confidence); (3) energy (drive, enthusiasm, motivation, hard work, persistence and commitment); (4) risk-propensity (a combination of risk tolerance and the ability to take calculated risks); and (5) leadership (vision and the ability to mobilize commitment). There were three phases of fieldwork: pilot study; main study part 1 and part 2. The fieldwork comprised students completing an online version of the Tool and focus groups with several staff from a range of disciplines and separate focus groups with a small number of students (usually about seven from a mix of year groups). The last version of the scale after Principal component analysis with varimax rotation included 31 items: 6 for creativity factor, 6 for leadership factor, 7 for energy factor, 8 for self-efficacy factor, and 4 for risk-propensity factor.

Language Adaptation Process

After authorization from the author of the original YISMT, a Turkish version of the scale was developed, using the process of forwarding translation (Acquardo et al., 2004). Accordingly, there were five steps of the translation method which were applied: (1) translation of the original instrument into the target language, (2) comparison of the three translated versions of the instrument, (3) backward translation or blind double translation of the preliminary initial translated version of the instrument, (4) comparison of the back-translated versions of the scale, and (5) adapting the new Turkish scale into the Turkish language. The process of forwarding translation consisted of an initial preparation of two translations, completed by three independent Turkish bilingual translators: (1) a professional translator with 15 years of experience, (2) a PhD student and teacher of English and (3) a professor in Educational Technology field. Then, a consensus version was prepared by three of the authors. This consensus version was then back translated by two English translators, one of whom was a senior fellow English teacher with 18 years of experience, and the other was a PhD student and teacher of English Language Sciences with eight years of experience. The back 40 translated version was evaluated to verify agreement with the original instrument, and then a final version of the new scale was constructed. After the process of translation, the Turkish version of the scale was controlled by an experienced Turkish Language instructor with 20 years of experience and a Turkish language teacher with 5 years of experience. Turkish instructors had paid more attention while translating the reverse coded items since even a word should cause misunderstandings.

FINDINGS

Initial EFA

In the present study, an EFA was conducted on the 51 items, including dependent variables with 202 TVET school students. A Promax rotation using SPSS was applied for this initial EFA. Tabackhnick & Fidell (2007) declares that the best way to decide between orthogonal and oblique rotation is to conduct oblique rotation [e.g., direct Oblimin or Promax from SPSS] with the desired number of factors and check the correlations among factors If the data do not drive factor correlations, the solution remains nearly orthogonal. If correlations exceed .32, then there is a 10% (or more) overlap in variance among factors, enough variance to warrant oblique rotation unless there are compelling reasons for orthogonal rotation (Tabachnick & Fidell, 2007). Additionally, Fabrigar et al. (2000) recommend that, even when the correlations among components are negligibly low, researchers should run an oblique rotation, an oblique (Promax with a Kappa of 4) rotation was applied. In the present study, the internal consistency reliability coefficients (Cronbach's alphas) were calculated for each component, using the item scores of the items measuring each component. At the first step, using the 'eigenvalue more significant than one' criterion and an oblique (Promax) rotation, the analysis with 51 items generated eleven components should explain 60% of the total variance. Then, each item was assessed in terms of the following criteria: (1) whether it has a loading of greater than or equal to 0.35 on the dimension it is intended to measure while having no loadings of greater than or equal to 0.35 on other dimensions (as an indicator of simple structure); (2) whether there are at least two other items that measure the same dimension and meet the first criterion (as an indicator of strength and stability of extracted components) (Costello and Osborne, 2005). The four items which did not meet the criteria were eliminated. Prior to the extraction of the factors, Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity tests should be used to assess the suitability of the respondent data for factor analysis. The KMO index, in particular, is recommended when the cases to variable ratio are less than 1:5. While the KMO index ranges from 0 to 1, with 0.50 considered suitable for factor analysis, Bartlett's Test of Sphericity should be significant ($p < .05$) (Tabachnick, 2007). Cumulative percentage of variance (criterion) is another area of disagreement in the factor analysis approach (Williams et al., 2010). Accordingly, Bartlett's Test of Sphericity (4448,15, $p = 0.000$) and Kaiser-Meyer-Olkin (KMO = 0,85) was found acceptable (Kaiser, 1974).

Finally, 51-item structure explained 46% of the variance in the pattern of relationships among the items. According to the factor pattern matrix, which indicates the independent relationship between each measure and the factors, items with less value than 0.10, are dropped from the scale (Wood et al., 1996). In the end, four factors and 30 items remained (the first factor had 16, the second factor had 7, the third factor had 4, and the last factor had 3 questions).

According to correlation matrix results, it should be observed that some elements were not zero to the first decimal place (approximately 7%). Thus, one may interpret this as sufficient evidence that the matrix is close to diagonal, thereby deciding that the data are good for factoring (Charles, 1974). The preliminary analyses demonstrated that the original tools' factor number and the new scales' factor structure did not match. When the pattern matrix was analyzed, it was seen that there had been a unidimensional factor structure due to 13 reverse code items and the 3 items with low reliability. In accordance with the results of the factor structure, it was decided that reversed items often led to problems, the inferior model fit of factor models (e.g., Marsh, 1988). In some cases, the problem is not simply that the model is inadequate based on the hypothesized initially substantive factor structure. The lack of fit stimulates the revision of a more parsimonious conceptualization and the specification of additional substantive factors. The technique of interspersing positive and negative questionnaire items has been debated in the survey methodology literature for over fifty years to prevent response bias. The authors argue the usage of reversed items in measurement instruments, and they add that they should be used with caution, if necessary. They draw attention to the reversed items' measurement problems, such as low measure reliability complex factor structures. (Weijters & Baumgartner, 2012). These problems may be seen in some research studies. For instance, the results of the Rasch fit statistics and the confirmatory factor analysis suggest that the reverse directional items differ in psychometric properties from the straightforward items (Cronbach, 1942, 1950, as cited in Billiet & McClendon, 2000). Favorable to negative transformations change an item's psychometric

characteristics and, more importantly, change the construct that an item is intended to measure (Benson & Hocevar, 1985). Harvey, Billings and Nilan (1985) declared that with reverse coded items, it is impossible to know whether a test person understood the question correctly or whether the person missed the reversing of the scale and just used the scale as before. Unfortunately, research has shown that reverse-coded items may produce artefactual response factors consisting of negatively worded items (Benson and Hocevar 1985; Harvey et al., 1985; Herche and Engelland 1996; Pilotte and Gable 1990). The negative wording factor of the scales could represent something more than a response artefact, that is, complex substantive multi-dimensionality that should be investigated in-depth (Arias, 2017). Also, it is easy for respondents to misinterpret phrases that include negation, e.g., being not unhappy does not mean that one is happy (see Swain et al., 2008, for some recent evidence) (Weijters, 2013). Disturbingly, even low rates of misresponse can cause problems in basic analyses. Through simulation, Schmitt and Stults (1985) demonstrate that when mis-response is as low as 10%, factor analysis produces a two-factor solution in translations of instruments, even if a single factor exists in the population. (Scott et al. 2008). Researchers who employ mixed-worded scales often find that reverse worded items display somewhat lower reliability and weaker item-to-total correlations than their positive-worded counterparts (Cronbach 1942; Benson and Hocevar 1985; Peabody 1966). A positively prepared questionnaire shows higher Cronbach's alpha coefficient values and a better theoretical factor structure (Salazar & Bernabe, 2015). Data collected through multi-item Likert scales that contain reversed items often exhibit problems, such as unexpected factor structures and diminished scale reliabilities. These problems arise when respondents select responses on the same side of the scale neutral point for both reversed and non-reversed items, a phenomenon the authors call "misresponse." (Scott et.al., 2008).

Final EFA

Considering the literature review and preliminary EFA with reverse worded items, a new EFA with ProMax was conducted by excluding 16 items which had caused low reliable results in the preliminary factor analysis. According to results, Bartlett's Test of Sphericity (3102.430, p = 0.000) and Kaiser-Meyer-Olkin (KMO=0,89) were in acceptable value interval (Kaiser, 1974). Finally, this 51-item structure explained 51.278% of the variance (which is a higher percentage from the initial EFA) in the pattern of relationships among the items. The cumulative percentage was nearer to %60, which was aligned with literature (Costello & Osborne, 2015). Pattern matrix demonstrated six factors and 25 items considering the dimension of %35 (Costello & Osborne, 2005). With a sample size of 100 participants, loadings of .30 or higher can be considered significant or at least salient (see discussion in Kline, 2002, pp. 52-53). With much larger samples, even smaller loadings could be considered salient, but in language research, researchers typically take note of loadings of .30 or higher. Variables with loadings of. 30 or higher on more than one factor should be considered (Corner, 2009). In this research, while analyzing the correlation matrix, the matrix was close enough to diagonal, thereby deciding that the data are good for factoring, which should be observed some elements were not zero to the first decimal place (approximately 7%) (Charles, 1974). To sum up, the factor loading values for this current study are observed as being of a high level as seen in Table 2.

Table 2. Factors Resulting from the Final EFA and the Factor Loading Values

	Factors					
Items	1	2	3	4	5	6
s4	.734					
s10	.602					
s13	.614					
s41	.479					
s51		.403				
s53		.439				
s54		.541				
s55		.587				
s56		.676				
s57		.580				
s58		.446				
s24			.467			
s30			.546			
s37			.583			
s8				.610		
s42				.681		
s48				.422		
s1					.588	
s23					.738	
s29					.576	
s47					.395	
2						.575
18						.459
39						.373
52						.494

CFA Results

CFA which is a type of structural equation modeling (SEM) that can measure the relationship between observed and latent variables, was used in the study to validate a specific scale (Brown, 2006). It provides whether the scale fits in to the model and each goodness of fit index has certain critical limit points. Such as, correlation coefficient between factors and goodness of fit values should be less than 0.85. In addition, factor loadings should be high, error variances should be low and items' explanatory (R2) values should be high (Kline, 2005; Çokluk and fri., 2010). Besides, Awang (2015), suggests that factor loadings should not be lower than 0.50. Most of the fit measures will have a value of “0” since this is the worst model possible, whether parsimony-adjusted or not. In rare occasions, some fit indices, such as RMSEA and GFI, may have a non-zero value depending on the data (Schermelleh-Engel, K., et.al., 2003).If the results of the EFA model fit poorly, the model is rejected. CFA was conducted in this study to determine whether the scale factors were compatible with the data collected on a different sample to determine the accuracy of the construct validity. Goodness of fit criteria after confirmatory factor analysis are given in Table 3. In addition that, the final version of the scale is in the appendix.

Table 3. CFA Indexes of the Scale

Index	Normal Value	Acceptable Value	Scale
χ2/df	<2	<5	1,983
GFI	>0.95	>0.90	,906
AGFI	>0.95	>0.90	,899
CFI	>0.95	>0.90	,912
RMSEA	<0.05	<0.08	,046
RMR	<0.05	<0.08	,039

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

This study is the adaptation of YISMT developed by Chell (2009) into Turkish language. The original scale included 6 factors and the adapted scale had also 6 factors. The results of the CFA show that the fit statistics calculated by confirmatory factor analysis were in agreement with the actual data collected from the participants in an acceptable level. This indicates that the scale was in good agreement with the factor structure previously determined. When the standardized coefficients were examined, it was found that factor loadings were high, standard error values were low, t values were significant ($p < 0.001$) and R2 values were high. These results confirm the construct validity of the predetermined factor structure.

After the translation process, the results demonstrated that the new scale (Innovativeness Scale of Young Learners) had 25 items with six factors which were renamed as Leadership (has the same items with original scale except for 4th and 10th items), Energy (51st and 58th are the same), Braveness (24th and 30th items are the same with original scale), Proactivity (all of the items are the same with original scale), Ingenuity (all of the items are the same with the original scale), self-efficacy (all of the items are the same with the original scale).

The results of the analyses show that the fit statistics calculated by confirmatory factor analysis were in agreement with the actual data collected from the participants in an acceptable level. This indicates that the scale was in good agreement with the factor structure previously determined.

In conclusion, based on the analyses conducted, it can be asserted that the new scale is a valid and reliable assessment instrument in the Turkish language. Researchers may apply this scale in other fields dealing with innovational skills. In addition, a similar study on the innovational skills of students may be conducted on a different sample group.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Statements of publication ethics

We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Examples of author contribution statements

Hilal Zeynep Altınışık and Tufan Adıgüzel conceived of the presented idea Hilal Zeynep Altınışık developed the theory and performed the computations. Hilal Zeynep Altınışık and Tufan Adıgüzel verified the analytical methods. Hilal Zeynep Altınışık encouraged Yasin Gencer to investigate and supervised the findings of this work. All authors discussed the results and contributed to the final manuscript.

Researchers' contribution rate

The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

As of 2020, researchers applying are required to upload the Ethics Committee Approval Document. Such information as institution name, date, number, etc. regarding the "Ethics Committee Approval Document" should be presented here.

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APPENDIX

Öğrencilerin İnovasyon Becerileri

Aşağıdaki ifadelere ne düzeyde katıldığınızı lütfen belirtiniz.

		Kesinlikle	Katılmıyorum	Kısmen	Kararsızım	Biraz	Katılıyorum	Kesinlikle
1.	Arkadaşlarım onları temsil etmem için hep beni seçerler.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2.	Sınıfta yeni fikirlere ihtiyaç olduğunda arkadaşlarım bana danışırlar.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
3.	Takım lideri veya başkan olarak genelde hep ben seçilirim.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
4.	Proje çalışmaları grup içerisinde liderlik rolü üstlenmem için bana fırsat tanır.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
5.	Birçok işi aynı anda yürütmeyi severim.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
6.	Yeni fikirler üretmekte üstüme yoktur.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
7.	İnsanlara çekinmeden ne yapmaları gerektiğini söylerim.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
8.	Öyle zamanlar oluyor ki önerdiğim fikirler hem başkalarını hem de beni şaşırtıyor.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
9.	Kendimi risk alan bir kişi olarak tanımlarım.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
10.	Benden istenilen bir şeyi yapma konusunda kendime güvenirim.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
11.	İstediğim şeyler için sabır eder ve sonunda elde ederim	(1)	(2)	(3)	(4)	(5)	(6)	(7)
12.	Takdir edilmek, daha sıkı çalışmamı sağlar.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
13.	Bir şeyin nasıl yapılacağını öğrenmek için çaba harcadıkça yapabileceğime olan inancım artar.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
14.	Kendimi ifade etme fırsatı vermeyen konuları sevmem.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
15.	Verilen zor işlerin üstesinden gelmeyi severim.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
16.	Beni zorlayacak işleri severim.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
17.	Bir işi yaparken arkadaşlarım vazgeçse bile ben gerekeni yaparım.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
18.	Bir grubun lideri olmayı severim.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
19.	İnsanların beni lider olarak benimsemesini sağlamak beni mutlu eder.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
20.	İnsanları belli bir iş için bir araya getirip yönetmek hoşuma gider.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
21.	Grup çalışmalarında genelde başkaları adına karar alma sorumluluğunu ben üstüme alırım.	(1)	(2)	(3)	(4)	(5)	(6)	(7)

22.	İşleri tamamlamaktan zevk alırım.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
23.	Bir şeyleri iyi yapmaktan mutlu olurum.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
24.	Kendime güvenimin tam olduğunu söylerler.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
25.	Kendimden emin bir insanımdır.	(1)	(2)	(3)	(4)	(5)	(6)	(7)