# Adaptation of Personal Growth Initiative Scale-II to Turkish and Investigation of Psychometric Properties

# Ilhan Yalcin<sup>1</sup>, Asude Malkoc<sup>2</sup>

<sup>1</sup>Assist. Prof. Dr., Ankara University, Faculty of Educational Sciences, Department of Psychological Counseling and Guidance, Ankara - Turkey <sup>2</sup>Assist. Prof. Dr., Trakya University, Faculty of Education, Department of Psychological Counseling and Guidance, Edirne - Turkey

### **ABSTRACT**

Adaptation of Personal Growth Initiative Scale-II to Turkish and investigation of psychometric properties

**Objective:** The purpose of this study was to adapt the Personal Growth Initiative Scale-II (PGIS-II) to Turkish and to test validity and reliability of the Turkish version. The original scale consisted of four subscales, namely planfulness, readiness for change, using resources, and intentional behavior.

**Methods:** The sample consisted of 279 students from Ankara University. Besides PGIS-II, Life Satisfaction Scale and Trait Hope Scale were administrated to the participants.

**Results:** Confirmatory factor analysis revealed that 4-factor structure of the original scale was acceptable for the Turkish sample. Correlations between PGIS-II and other scales were ranging from 0.20 to 0.55. Internal consistency and test-retest correlation of the scale were 0.91 and 0.80, respectively.

**Conclusion:** It was found that the 4-factor model of the PGIS-II is appropriate for Turkish culture and the scale could be used to measure personal growth initiative.

Key words: Personal growth initiative, reliability, validity

### ÖZET

Kişisel Gelişim Yönelimi Ölçeği-Il'nin Türkçeye uyarlanması ve psikometrik özelliklerinin incelenmesi

Amaç: Bu çalışmada, Kişisel Gelişim Yönelimi Ölçeği-Il'nin (KGYÖ-II) Türkçeye uyarlanması ve uyarlanan formun geçerlilik ve güvenilirliğinin test edilmesi amaçlanmıştır. Ölçeğin özgün formu planlı olma, değişime hazır olma, kaynakları kullanma ve amaçlı davranış olmak üzere dört alt boyuttan oluşmaktadır.

**Yöntem:** Çalışmanın örneklemini Ankara Üniversitesi'nde öğrenim görmekte olan 279 öğrenci oluşturmaktadır. Çalışmada KGYÖ-li'nin yanı sıra, Yaşam Doyumu Ölçeği ve Sürekli Umut Ölçeği de kullanılmıştır.

**Bulgular:** Doğrulayıcı faktör analizi sonucunda, ölçeğin dört faktörlü özgün yapısının Türk örneklem grubu için de geçerli olduğu ortaya çıkmıştır. Ölçeğin diğer ölçeklerle korelasyonları, 0.20 ile 0.55 arasında değişmektedir. Ölçeğin tamamının iç tutarlık katsayısı 0.91, test-tekrar test katsayısı ise 0.80'dir.

**Sonuç:** KGYÖ-li'nin dört faktörlü yapısının Türk kültürüne uygun olduğu ve kişisel gelişim yönelimini ölçmek üzere araştırmalarda kullanılabileceği saptanmıştır.

Anahtar kelimeler: Kişisel gelişim yönelimi, güvenilirlik, geçerlilik



Address reprint requests to / Yazışma adresi: Assist. Prof. Dr. Ilhan Yalcin, Ankara University, Faculty of Educational Sciences, Department of Psychological Counseling and Guidance 06590, Ankara - Turkey

Phone / Telefon: +90-312-363-3350

E-mail address / Elektronik posta adresi: yalcini@ankara.edu.tr

Date of receipt / Geliş tarihi: November 8, 2012 / 8 Kasım 2012

Date of acceptance / Kabul tarihi: December 25, 2012 / 25 Aralık 2012

### **INTRODUCTION**

Personal growth, which is covered pervasively in education, research and industry, reflects the process of achieving highest possible potential and self-educating in terms of mental, social, emotional and behavioral respects. The personal growth initiative represented in the context of this concept is the deliberate progression of the individual on personal development process (1). Prochaska and DiClemente

coined this process as deliberate change and it happens by the individual's own will, effort and active participation (1). As can be understood, individual's self-direction of the change process depends on having internal motivation for change and capacity of independent action (2).

Cognitive and behavioral changes are experienced during personal growth process (1,2). Cognitive dimension includes individual's knowledge on how to change various aspects of life while behavioral

dimension includes the initiation of change in the desired field. Thus, individuals with high level of personal growth initiative not only know in which way they want to grow but also seek for growth opportunities actively. For example, "I can decide what to change in myself" statement indicates the readiness for personal growth, while "I seek opportunities for growth as a person" statement indicates that individual gets into action for personal growth (1).

The first study which investigated the personal growth initiative levels was conducted by Robitschek (1). Personal Growth Initiative Scale (PGIS), developed by Robitschek, includes 9 items and is a 6-point Likert type scale from 0 (definitely disagree) to 5 (definitely agree). Total score changes between 0 to 45 and higher scores correspond to higher personal growth initiative (1,3). Reliability and validity analysis based on three separate samples showed that internal consistency coefficient was 0.89 for women and 0.90 for men; testretest reliaiblity coefficients were between 0.78 and 0.88. Confirmatory factor analysis revealed a single factor (1).

Several studies on personal growth initiative followed the development of the scale. Robitschek and Cook (3) reported that college students with high personal growth initiative showed more effort to explore necessary conditions and work environments related with their occupation and had more settled occupational identities when compared with students with lower personal growth initiative. Authors also found that students with high personal growth initiative were aware of the change they experienced towards personal growth in time and they explored deliberately for opportunities that would help them to achieve their goals. Robitschek and Kashubeck (4) showed that there was a positive correlation between personal growth initiative and psychological wellbeing and a negative correlation between personal orientation and stress.

Personal growth initiative has a particularly important role on individual's transition from university to vocational life. College life is an environment in which social interactions and friendship gain importance and academic activities are at the

forefront, where the students try to progress through their career goals. Therefore, college presents an environment for many students to help them develop themselves and create an independent and meaningful life (5). During their time in college, individuals try to plan their future and develop themselves step by step in this direction. Robitschek (1), empasizes that particularly students with high personal growth orientation have an action plan to achive the goals they decided.

Although personal growth initiative includes cognitive and behavioral factors, the scale designed to measure the construct has a single factor (1,3). Therefore, Robitschek and associates (6), needed a new scale which differentiates between cognitive and behavioral dimensions of personal growth initiative and in order to fulfill this, developed a new, 16-items scale titled Personal Growth Initiative Scale-II (PGIS-II) by extending the original form of Personal Growth Initiative Scale. Psychometric properties of this scale is defined in the methods section.

When the availability of a measure for personal growth initiative in Turkey was investigated, we found that Akın and Anlı (7) translated and adapted PGIS to Turkish. In the adaptation study which involved three hundred and thirty-six high school students, exploratory factor analysis yielded a single variance consisting of 9 items which explained 37% of the variance. Confirmatory factor analysis indicated that the single dimension model had a good fit. Internal consistency coefficient was 0.90 and test-retest reliability was 0.94.

The 9 item Personal Growth Initiative Scale (PGIS) developed by Robitschek (1) was adapted to Turkish culture by Akın and Anlı (7) and named "Bireysel Gelisim Insiyatifi". Aim of the present study was to adapt the 16 items Personal Growth Iniative Scale-II (PGIS-II) developed by Robitschek and colleagues (6) to Turkish culture. Since it is believed to reflect the scale items better, we translated the expanded version of the scale as "Kisisel Gelisim Yonelimi" in this new adaptation study. Reliability and validity of the scale was studied in a sample of college students in this context.

### **METHOD**

## **Study Sample**

The sample included 279 students who took courses from Ankara University, Faculty of Education during 2012-2013. 223 of the participants were female and 56 were male. The age range was 17-37 (mean=20.29, SD=2.30). All students participated voluntarily. Some demographical features were summarized in Table 1. Three of the participants did not reveal their departments, while level of income, maternal education and paternal education were not revealed by 2,4, and 1 students, respectively (Table 1).

### **Translation Procedure**

In order to adapt Personal Growth Initiative Scale-II to Turkish culture, we first got in touch with Christine Robitschek, who developed the original scale, to get permission for the adaptation study and to reach all items of the scale. After this, the scale was

translated to Turkish independently by four instructors with good English skills. Authors revised the translations and decided the last version of the items. The scale was translated back to English by another instructor who had a Ph.D. on language at the United States of America. Back-translated items were also shared with the author of the original scale to finish the translation process. Following this, Turkish and English forms of the scale were applied to 41 fourth grade students from Department of English Language Teaching twice in three weeks. Pearson moments product correlation was computed between the two applications and a positive and significant correlation was found (r=0.79, p<0.01). Accordingly, it was decided that the translation fulfilled language equivalence.

### Measures

Satisfaction with Life Scale and Hope Scale were used in the study along with Personal Growth Initiative Scale-II.

Variables	Level	n	%
Department	Psychological counseling	108	39.1
	Preschool teaching	98	35.5
	Class teaching	43	15.6
	Mental disability teaching	27	9.8
Level of income (TL)	0-1000	72	26
	1001-2000	109	39.4
	2001-3000	62	22.4
	3001-4000	18	6.5
	4001 and more	16	5.8
Maternal education level	Illiterate	9	3.3
	Primary	141	51.3
	Secondary	32	11.6
	High school	58	21.1
	College	35	12.7
Paternal education level	Illiterate	1	0.4
	Primary	78	28.1
	Secondary	38	13.7
	High school	72	25.9
	College	84	30.2
	Post graduate	5	1.8

### Personal Growth Initiative Scale-II

Personal Growth Initiative Scale-II (6), is a 16-item, multidimensional scale, developed to make a detailed assessment of personal growth process of the individual. This is a 6-point Likert type scale from 0 (definitely disagree) to 5 (definitely agree). Total score changes between 0 to 80. Factor analysis revealed four dimensions: planfulness, readiness for change, using resources, and intentional behavior.

One, two, four and six weeks test-retest analysis yielded reliability coefficients between 0.62 and 0.82. Cronbach alpha internal consistency coefficients of the subdimensions changed from 0.81 to 0.89 and Cronbach alpha internal consistency coefficient for the whole scale was 0.92 (6). Besides, parallel with the results of the original version of Personal Growth Initiative Scale, PGIS-II total score and subscale scores were found to be positively correlated with internal focus of control, extroversion and self-esteem (6).

## Scoring of Personal Growth Initiative Scale-II

Subscales of PGIS-II are scored first. The subscale scores are calculated by summing the item responses for that subscale and dividing by the number of items in the subscale. In another saying, for the first factor, the sum of items in the factor is divided by four (there are four items in factor one), the sum of items in factor two is divided by five (there are five items in factor two), the sum of items in factor three is divided by three (there are three items in factor three), the sum of items in factor four is divided by four (there are four items in factor four). Thus subscale scores are calculated. The Total Score is calculated by summing the subscale scores and then dividing by four (number of subscales). The original scale is also scored the same way (6).

### Satisfaction with Life Scale

Satisfaction with Life Scale is developed by Diener and associates (8). The scale includes 5 items on a 7-point Likert scale (1=totally inappropriate, 7=totally appropriate). The scale is adapted to Turkish by Koker

(9). Test-retest reliability of the Turkish form is 0.85. Higher the score, higher the satisfaction from life is. Internal consistency coefficieny of the scale was (N=279) 0.85 in the present study.

### Hope Scale

While Hope Scale consists of 12 items, four items are unrelated to hope and are filling items. This is a 4-point Likert type scale (1=totally disagree, 4=absolutely agree). Akman and Korkut (10) adapted the scale to Turkish. Internal consistency coefficient of the Turkish form is 0.65 and test-retest reliability is 0.80. In this study, internal consistency coefficient of the scale was (N= 279) 0.80.

## **Data Analysis**

Construct validity and criterion validity of Personal Growth Initiative Scale-II were investigated in order to assess the validity of the scale. Confirmatory factor analysis (CFA) was computed for construct validity. Several fit indexes have been used to intrepret CFA results. In this study the following fit indexes were used: Chi-square goodness, Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR), Comparative Fit Index (CFI), Normed Fit Index (NFI), Incremental Fit Index (IFI) and Relative Fit Index (RFI). For RMSEA, 0.05 to 0.08 is acceptable fit while values 0.05 and lower reflects good fit; for SRMR values lower than 0.08 are acceptable. CFI, NFI, IFI and RFI values over 0.90 indicates good fit (11,12). Cronbach alpha coefficient was used to assess internal consistency of the scale and Pearson moments product correlation coefficient is used to assess testretest reliability. Data is analyzed by SPSS 18 and LISREL 8.71 software.

### **RESULTS**

### **Item Analysis**

Item analysis was conducted in order to investigate item differentiation. PGIS-II score arithmetic mean,

Item no	Mean	Standart deviation	Item-total correlations
1	3.80	0.82	0.62
2	3.60	0.98	0.62
3	3.40	1.02	0.66
4	3.44	1.02	0.55
5	3.63	0.93	0.69
6	3.13	1.08	0.23
7	3.43	0.95	0.70
8	3.90	0.91	0.61
9	3.61	0.93	0.55
10	3.66	0.96	0.72
11	3.55	0.94	0.65
12	3.81	0.86	0.55
13	3.61	0.84	0.69
14	3.20	1.06	0.25
15	3.60	0.93	0.65
16	3.59	0.94	0.67

standard deviation, and item-total correlations of the participants were summarized in Table 2. Item analysis indicated that item-total correlations were between 0.23 and 0.72.

# **Construct Validity**

### **Confirmatory Factor Analysis**

The original form of the scale has a four-factor construct. In order to find whether this factor structure is also valid in the Turkish sample, confirmatory factor analysis (CFA) were done. Satorra-Bentler chi-square value obtained for 98 degrees of freedom in the four factor structure was 220.49 ( $\chi^2/SD=2.25$ ). Fit indexes were CFI=0.98, NFI=0.97, IFI=0.98, RFI=0.96, SRMR=0.14, and RMSEA=0.067. All fit indexes indicated good fit and RMSEA value was in the acceptable range.  $\chi^2/SD$  value is lower than 3, which also indicates good fit. Only SRMR value was not in the acceptable range. When the fit values were evaluated in general, it was evident that the four-factor structure was valid for the Turkish sample. Standardized values obtained from Personal Growth Initiative Scale- II (PGIS-II) confirmatory analysis were summarized in Figure 1 (Figure 1).

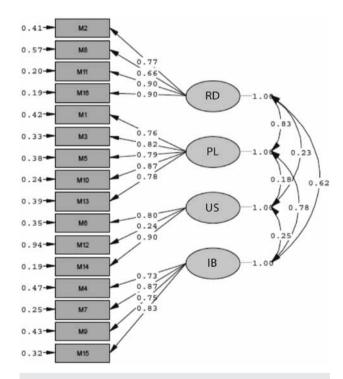


Figure 1. Standardized values obtained from confirmatory factor analysis of Personal Growth Initiative Scale-II

RD: Readiness for Change, PL: Planfulness, US: Using Resources, IB: Intentional Behaviors. Chi-Square= 220.49, df= 98, p<0.001, RMSEA= 0.067

Table 3: Correlation coefficients on criterion validity

iative
42** 55**

<sup>\*\*</sup>p<0.01 statistically significant, SLS: Satisfaction with Life Scale, HS: Hope Scale

As can be seen in Figure 1, standardized coeffcients of items associated with "readiness for change" dimension were between 0.66 and 0.90, of items associated with "planfulness" dimension were between 0.76 and 0.87, of items associated with "using resources" dimension were between 0.24 and 0.90 and of items associated with "intentional behavior" dimension were between 0.73 and 0.87. Correlations among the subscales were between 0.18 and 0.83.

# **Criterion Validity**

Criterion validity was also investigated for PGIS-II. Robitschek and associates (6) indicated that personal growth initiative is a concept positively associated with psychological well-being. For this, Satisfaction with Life Scale and Hope Scale were used in PGIS-II criterion validity study. Data obtained from 279 participants who formed the study group were used for the construct validity analysis. Pearson moments product correlation coefficients among PGIS-II subscale and total scores and SLS and HS scores were summarized in Table 3. Results indicated that there were positive and significant associations among PGIS-II subscale and total scores and SLS and HS scores (Table 3).

### **Reliability Studies**

Two methods were used to evaluate the reliability of PGIS-II. First, internal consistency coefficients were investigated, followed by test-retest application. Internal consistency coefficients were:  $\alpha = 0.83$  for readiness for change dimension,  $\alpha = 0.87$  for planfulness dimension,  $\alpha = 0.61$  for using resources dimension,  $\alpha = 0.84$  for intentional behavior dimension, and  $\alpha = 0.91$  for the total scale. In order to calculate test-retest reliability, scale was administered to 54 participants in

three weeks. Test-retest reliability values were: 0.70 (p<0.01) for readiness for change dimension, 0.71 (p<0.01) for planfulness dimension, 0.62 (p<0.01) for using resources dimension, 0.73 (p<0.01) for intentional behavior dimension, and 0.80 (p<0.01) for the whole scale.

### **DISCUSSION**

In this study Turkish adaptation of "Personal Growth Initiative Scale-II" scale, developed by Robitschek and colleagues (6) was conducted. Confirmatory factor analysis was run and criterion validity was assessed to investigate the validity of Personal Growth Initiative Scale-II (PGIS-II). Reliability of the scale was assessed by internal consistency coefficient and test-retest methods.

Confirmatory factor analysis showed that the four-factor structure had sufficient fit indexes. In another saying, the original structure of the scale was validated in a sample from Turkey.

In the context of construct validity, correlations of the scale with Satisfaction with Life Scale and Hope Scale were investigated. As expected, there were positive and significant correlations among total and subscale scores with life satisfaction and hope scores. These results were consistent with Robitschek and Keyes' findings regarding life satisfaction (13), Shorey and colleagues findings in terms of hope (14). The scale was found to be reliable after testing with internal consistency coefficients and test-retest reliability methods. The scale consists of four subscales. First one is readiness for change, second is planfulness, third is using resources and the last is intentional behavior.

Personal growth initiative refers to individual's active and intentional participation to the change

process (4). Level of an individual's personal growth initiative can be used to make an evaluation after psychological counseling or psycho-education processes. For example, the scale can be utilized to evaluate the skills or general approach to change (1). Besides, it has been argued that personal growth initiative predicts to a significant degree psychological well-being, social well-being and emotional well-being, which are included in the three-factor mental health model of Keyes (13). Thus, it can be suggested that this scale can be used to evaluate general well-being of college students.

College education is an important period in life of the youth. During this period students make both vocational and personal growth attempts and face several stimuli. Therefore, investigating personal growth initiatives of youth may help to customize personal and social services which will be provided. For instance, Robistchek and Cook (3) found that individuals with higher personal growth initiative level explore their environment more and have a more definite career identity. In this context, it can be suggested that, by increasing the students' personal growth initiatives,

they can be directed to increased information collection from their environment to have a more positive occupational identity perception.

Association of personal growth initiative of the students with variables such as social anxiety, positive and negative affect (15), self-sufficiency and risk taking behaviors (16), personality (17), family functionality (18), occupational identity (3) and life satisfaction (5) in the international literature. By using this scale adapted to Turkish culture, it will be possible to investigate variables associated with personal growth initiative and various dimensions of this construct.

In conclusion, it is possible to argue that Personal Growth Initiative Scale II is a valid and reliable measure which can be used to evaluate personal growth initiative of college students. However, there were some limitations of our study. Sample consisted of students from a single faculty. It will be helpful to investigate psychometric properties of the scale in different age and occupation groups. It can also be argued that studies involving samples from different faculties of different universities may contribute to the generalizability of the results.

### **REFERENCES**

- Robitschek C. Personal growth initiative: the construct and its measure. Meas Eval Couns Dev 1998; 30:183-198.
- Robitschek C. Validity of Personal Growth Initiative Scale scores with a Mexican American college student population. J Couns Psychol 2003; 50:496-502.
- Robitschek C, Cook SW. The influence of personal growth initiative and coping styles on career exploration and vocational identity. J Vocat Behav 1999; 54:127-141.
- Robitschek C, Kashubeck S. A structural model of parental alcoholism, family functioning, and psychological health: the mediating effects of hardiness and personal growth orientation. J Couns Psychol 1999; 46:159-172.
- Stevic CR, Ward RM. Initiating personal growth: the role of recognition and life satisfaction on the development of college students. Soc Indic Res 2008; 89:523-534.
- Robitschek C, Ashton MW, Spering CC, Geiger N, Byers D, Schotts GC, Thoen MA. development and psychometric evaluation of the Personal Growth Initiative Scale-II. J Couns Psychol 2012; 59:274-287.

- 7. Akin A, Anli G. Adaptation of the Personal Growth Initiative Scale: Study of validity and reliability. Mersin University Journal of the Faculty of Education 2011; 7:42-49 (in Turkish).
- 8. Diener E, Emmons RA, Larsen RJ, Griffin S. The Satisfaction with Life Scale. J Pers Assess 1985; 49:71-75.
- 9. Koker S. Comparison of life satisfaction of healthy and unhealthy adolescents. Yüksek Lisans Tezi, Ankara University, Ankara, 1991 (Thesis in Turkish).
- 10. Akman Y, Korkut F. A study on Hope Scale. University Journal of Education 1993; 9:193-202 (in Turkish).
- Byrne BM. Structural Equation Modeling With Amos: Basic Concepts, Applications, And Programming. Second ed., New York: Routledge, 2010.
- 12. Kline RB. Principles And Practice Of Structural Equation Modeling. Second ed., New York: Guilford Press, 2005.
- 13. Robitschek C, Keyes CLM. Keyes's model of mental health with personal growth initiative as a parsimonious predictor. J Couns Psychol 2009; 56:321-329.

- Cook HS, Little TD, Snyder CR, Kluck B, Robitschek C. Hope and personal growth initiative: a comparison of positive, futureoriented constructs. Pers Individ Dif 2007; 43:1917-1926.
- 15. Hardin EE, Weigold IK, Nixon AE, Robitschek C. Self-discrepancy and distress: the role of personal growth initiative. J Couns Psychol 2007; 54:86-92.
- Ogunyemi AO, Mabekoje SO. Self-efficacy, risk-taking behavior and mental health as predictors of personal growth initiative among university undergraduates. Electronic Journal of Research in Educational Psychology 2007; 5:349-362.
- 17. Sharma SK, Garg P, Rastogi R. Personality as a predictor of personal growth initiative. The IUP Journal of Organizational Behavior 2011; 10:41-52.
- Whittaker AE, Robitschek C. Multidimensional family functioning: predicting personal growth initiative. J Couns Psychol 2001; 48:420-427.

### **EK 1**

# Kişisel Gelişim Yönelimi Ölçeği-II (KGYÖ-II)

Lütfen aşağıdaki maddeleri dikkatlice okuyunuz. Her bir ifadeye ne derece katıldığınızı aşağıdaki ölçeği kullanarak belirtiniz.

0: Hiç katılmıyorum1: Çoğunlukla katılmıyorum2: Kısmen katılmıyorum3: Kısmen katılıyorum4: Çoğunlukla katılıyorum5: Tamamen katılıyorum

### **MADDELER**

1.	Kendimle ilgili değiştirmek istediğim şeyler için gerçekçi hedefler belirlerim.	0	1	2	3	4	5
2.	Kendimle ilgili belirli değişiklikler yapmaya hazır olduğum zamanı söyleyebilirim.	0	1	2	3	4	5
3.	Kendimle ilgili değişiklik yapmak için gerçekçi bir planın nasıl yapılacağını biliyorum.	0	1	2	3	4	5
4.	Kendimi geliştirmek için ortaya çıkan her fırsatı değerlendiririm.	0	1	2	3	4	5
5.	Kendimle ilgili değişiklik yapmaya çalıştığımda, gelişimim için gerçekçi bir plan yaparım.	0	1	2	3	4	5
6.	Kendimle ilgili değişiklik yapmaya çalıştığım zaman başkalarından yardım isterim.	0	1	2	3	4	5
7.	Kendimi geliştirmek için aktif bir şekilde çalışırım.	0	1	2	3	4	5
8.	Kendimle ilgili neleri değiştirmem gerektiğini belirleyebilirim.	0	1	2	3	4	5
9.	Bir birey olarak sürekli kendimi geliştirmeye çalışıyorum.	0	1	2	3	4	5
10	. Kendimle ilgili değişiklikler yapmak için gerçekçi hedefleri nasıl belirleyeceğimi biliyorum.	0	1	2	3	4	5
11	. Kendimle ilgili belirli bir değişikliği ne zaman yapmam gerektiğini bilirim.	0	1	2	3	4	5
12	. Kendimi geliştirmeye çalıştığım zaman mevcut olanakları kullanırım.	0	1	2	3	4	5
13	. Kendimle ilgili değişiklik yapmak için atacağım adımları biliyorum.	0	1	2	3	4	5
14	. Kendimi değiştirmeye çalıştığımda aktif olarak yardım almaya çabalarım.	0	1	2	3	4	5
15	. Bir birey olarak gelişmek için fırsatları araştırırım.	0	1	2	3	4	5
16	. Kendimle ilgili belirli şeyleri değiştireceğim zamanı bilirim.	0	1	2	3	4	5

eproduced with permission of the copyright owner. Further reproduction prohibited wit rmission.	thout