The Study of Adapting Self-Regulation Questionnaire into Turkish

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Abstract

The purpose of this study is to adapt Academic Self-Regulation Questionnaire, which was developed by Ryan and Connell (1989), into Turkish making sure that it is valid and reliable for Turkish conditions. In order to maintain the language equivalence of the questionnaire, two applications were carried out, leaving three weeks between them and consequently a high-level, positive and meaningful relation was found. For the validity and reliability study of the questionnaire of which language equivalence is provided, participants consist of 762 students who study at 5th, 6th, 7th and 8th grade in the education year of 2012-2013 at governmental secondary school in Gaziantep.As a result of the explanatory factor analysis, it was found that the questionnaire had a four-factored structure consisting of 17 items.The loadingvalues of these items changed between 0.477 and 0.818 and the item-total correlations were between .24 and .47. This structure was confirmed by Confirmatory Factor Analysis. The test-retest Pearson correlation factor of the questionnaire was 0.85 and its Cronbach Alpha was calculated as 0.78. Under the circumstances, we can say that the version of ASRQ which was adapted into Turkish is valid and reliable.

Keywords: Self-Determination Theory, Academic Self-Regulation, Intrinsic Motivation, External Motivation

1. Introduction

The behavior of human has attracted scientist's attention for ages. In the studies about this subject, it has been stated that the reasons for the behaviors of human is about motivation (Guay et al.,2010). Despite the fact that the word motivation is used commonly in daily life, it is not easy to define it scientifically (Dorman andGaudiano, 1995). Therefore, psychologists defined motivation as the reason for human behavior (Graham and Weiner, 1990, p. 63), as the power actualizing, sustaining and leading a movement to its goal (Pintrich and Schunk, 1996), the properties guiding to do or not to do something (BroussardandGarrison, 2004). In order to explain the motivation that actualises an individual, a lot of theory has been developed.

Needs Theories (Murray, 1938; Maslow, 1970), Expectancy-Value Theories (Lewin, 1951), Social Learning Theories (Rotter, 1954; Bandura, 1970) and Attribution Theories (Weiner, 1984; Dweck, 1986) are all theories about motivation. When motivation theories are analyzed, it can be seen that these theories make systematic definitions about how motivation develops and which factors affect it (Açıkgöz, 2000, p. 163). Most theories today focus on goals or results and on the means that direct a person to these desired results (Deci et al.,1991). According to Deci et al. (1991) such theories pertain to the framework of behavior,but they do not give any answer to the question of why particular results are desired. For this reason, they are unable to elaborate on the issue of the energization of behavior.

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In contrast to these other theories,self-determination theory formed by Deci and Ryan(1985) does elaborate on the issue of energization besides the framework issue, and it manages to do this by hypothesizing about fundamental psychological needs that are instinct in human nature.

Self-determination means determination of one's own fate or course of action without compulsion; free will (www.thefreedictionary.com).The gist of the theory is that all people have inherent proclivities towards self-development and vigor which are bolstered or hindered by their immediate environment (Hill,2011). The best conditions in which their fundamental proclivities are realized are defined in the framework of the fulfillment of psychological needs for competence,relatedness and autonomy;to put it in another way,the degree to which people enjoy a sense of aptitude,social acceptance and autonomy of preference in milieus that are significant for them (Ryan and Deci,2000). According to Deciet at al.(1991) competence involves comprehending how to attain various results internally and externally significant and being adept at carrying out the pivotal actions;relatedness involves forming secure and fulfilling relations with other people in one's social milieu;autonomy involves being self-initiating and self-directive in one's own deeds.

In the framework of self-determination theory, the need for autonomy pertains to the fundamental need to enjoy one's behavior as self-endorsed or in a way based on free will (Ryan andGrolnick, 1986). Self determination theory claims that autonomy, competence and relatedness are universal necessities across cultures; and when these needs are satisfied, individuals show the best well-being and the optimalfunctioning (Sheldon et al., 2001).

Self determination theory distinguishes between intrinsic motivation and extrinsic motivation also tries to explain in which cases the individual shows which kind of motivation (Kart and Güldü, 2008). Intrinsic motivation expresses that an individual performs an action for pleasure or satisfaction (Deci and Ryan, 1985).Intrinsically motivated people perform their action freely and willingly without compulsion or reward.That is, intrinsically motivated behaviors are performed for pleasure, entertainment and satisfaction. At the time of intrinsic motivation, a person is urged to behave for the sake of fun rather than due to external rewards or approval (Ryan andDeci, 2000). Intrinsic motivation arises from the need for feeling competent, autonomous and related. Being internally motivated means conducting deeds for which the provenance of start and direction is inside the individual (Deci et al., 1992). To illustrate, children play many games because they are interesting and satisfying for them. During the game, students are intrinsically motivated. Nonetheless, extrinsic motivation encompasses carrying out a deed for external causes such as gaining rewards or abstaining from punishments and persecution (Deci and Ryan, 1985).However, behaviors extrinsically motivated are functional in nature.They are conducted not because of sympathy for them,but because they are believed to be functional for the sake of attaining a particular target (Deci et al.,1991). For example, a lot of people do a job not because they like it, but because they earn a living. Here, the job is a means for an individual's earning a living.

Different from intrinsic and extrinsic motivation, Deci and Ryan (1985) pointed out that a third term, amotivation, should be regarded to understand human behavior fully. Amotivated regulation means that people cannot realize a link between their deeds and results of these deeds (Pelletier et al., 2001).According to them at times when people are amotivated,they act without intending to do anything or they do not have the necessary urge to act.A lack of control is observed in this situation.That is, they perceive that their actions are performed by the powers out of their control. In this case, people are neither intrinsically nor extrinsically motivated (Vallerand et al., 1992).Amotivated behaviors are the least self-determined, because of the fact that there is no observable aim,no observable expectation of a gain and no observable expectation that the pathway of current events can be altered (Pelletier et al.,2001).

In the framework of this theory, people are innately motivated to adapt to events transpiring in the external world for the sake of attaining the desired results, but they,in fact, are not impressed inherently by this in any way(Deci et al.,1994).

The process whereby a person internalizes the external events and tries to adapt to them is a function necessary for the social well-being (Deci et al.,1991). External norms are internalized and perceived as one's own (Deci et al., 1994).

Deci and Ryan (1985) pointed out that there are four kinds of extrinsic regulation and these are ranked on self-determination continuum, according to the autonomy degree from the lowest self-determined regulation to the highest self-determined regulation. These are called as external regulation, introjected regulation, identified regulation and integrated regulation.

External regulation is the least autonomous form of extrinsic motivation and encompasses the long-known instance to attain rewards or shun punishment (Ryan and Deci, 2002, p.17). On account of the fact that the reason is placed outside, the motivation is extrinsic (Pelletier et al., 2001). What's more behaviors are not determined by the individual's free will. Here, the person feels a compulsion, a pressure to act in a particular way, and feels manipulated by an external source (Deci and Ryan, 1985). External regulation can be initiated by the desire to reach a reward (Vallerand and Bissonnette, 1992). That a child whose room is messy tidies up his room in order to get rid of the punishment his parents are going to give can be given as an example for this kind of regulation. Here, the child suffers oppression from his parents to perform the action or wants to win a reward.

In introjected regulation, people start internalizing the causes of their deeds (Vallerand and Bissonnette, 1992). In spite of the fact that it is a sort of motivation stemming from within,it is not entirely regarded as one's own (Pelletier et al.,2001).Introjection-based deeds are conducted to shun the feeling of culpability and embarrassment or to attain ego enhancement and sentiment of self-worth(Ryan and Deci,2002, p.17).Different from external regulation, in this regulation rewards and restrictions are self-imposed (Vallerand andBissonnette,1992). That a lazy student does his homework not to feel guilty is an example for this kind of regulation. A student is defined as somebody who doesn't do his homework regularly. Therefore, this specialty is not a part of the student, but this behavior results from the student's free will.

Identified regulation takes place when the individual regards the behavior as valuable and has known and acknowledged the regulatory process (Deci andRyan, 1991). For that reason, behavioris the more self-determined form of external regulation, because a person has decided that his activity is beneficial and essential, so he has made a choice to do it. In this case, the individual felt an aim rather than compulsion or pressure. The motivation is extrinsic since the deed is not conducted for its own sake, for enjoyment or fulfillment,but to attain particular aim (Pelletier et al.,2001). A good teacher who follows the latest innovations in educational sciences to be an expert in his/her field is an example for this kind of regulation. Here, the teacher is defined as good by others. And s/he gives value to that specialty of his/herself ands/he studies in educational sciences on his freewill to sustain it.

Integrated regulation is the most self-determined form of extrinsically motivated behaviors. In this case, regulatory process is fully integrated with the individual's persistent sense of self; namely, the identifications have been incorporated into the individual's other values,needs or identities (Ryan andDeci,2002, p.18). For example, a student can be both successful and a footballer. The student's defining himself sometimes as a good student, but sometimes as a good footballer can create a conflict and stress on him. But when these two definitions become integrated, it is coherent with each other and with the student's sense of self and this case expresses who the individual is (Deci and Ryan, 1991).

Integrated forms of motivation have a lot in common with intrinsic motivation, both being autonomous and without turmoil (Ryan and Deci, 2000). Nonetheless, they are still extrinsic due to the fact that deed motivated by integrated regulation is conducted for the sake of an external gain which is completely different from the deed itself much as it is based on free-will and appreciated by the self (Ryan and Deci, 2000).The kinds of motivation defined by Deci and Ryan (1985) are given in Figure 1.
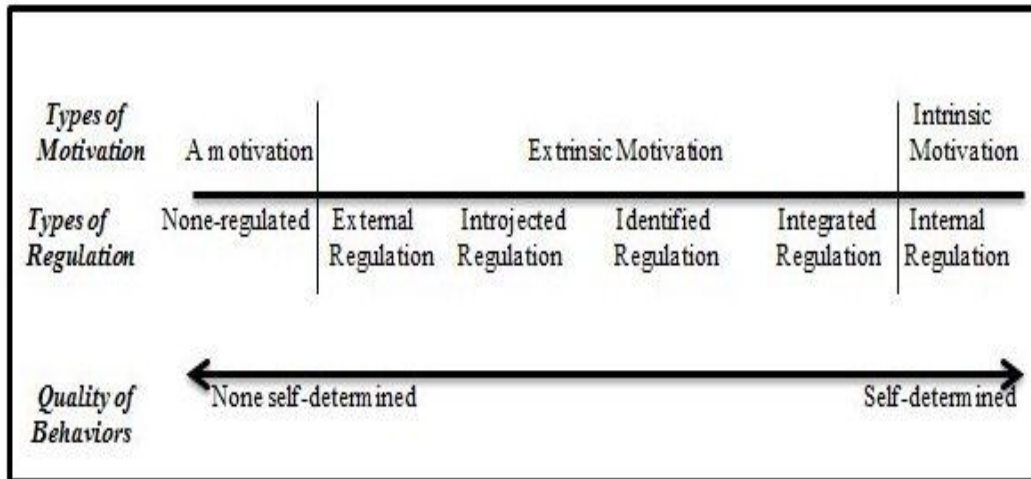
Types of Motivation	A motivation	Extrinsic Motivation				Intrinsic Motivation
Types of Regulation	None-regulated	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Internal Regulation
Quality of Behaviors	None self-determined					Self-determined

Figure 1. Types of Motivations and Regulations (Ryan and Deci, 2002, P.16)

In his literary review Reeve (2002, p. 184) pointed out that intrinsic, identified and integrated regulations' (autonomous orientations) educational benefits are more related to higher academic achievement, greater perceived academic competence, more positive emotionality, higher self worth, preference for optimal challenge, enhanced creativity and higher memory, in comparison to external and intrtojected regulation (controlled orientations). In order to search out the educational benefits of regulation kinds,it must be primarily determined that what kind of regulation students have in which cases. Although there is a scale (Karataş andErden, 2009) based on self-determination theory adapted to Turkish to determine university student's self regulation style, there isn't a scale to be used in order to determine the secondary school student's (age 11-14) self-regulation style while they do a task at school. Therefore, the goal of this study is to adopt self regulation scale, developed by Ryan and Connell (1989) for secondary school students, to Turkish and to redound it to literature. So, this study is hoped to contribute to the researches to be carried out for determining the relationship between Turkish students' self regulation styles that they have while doing their schoolworks and different variables (academical success, self competence, self value and creativity etc.).

2. Methodology

2.1. Participants

In this research to provide language equivalence, the participants consist of 50 students who study at the Foreign Language High School of Gaziantep University and who knows English at advanced level.

For the validity and reliability study of the survey of which language equivalence is provided, participants consist of 762 students who study at 5th, 6th, 7th and 8th grade in the education year of 2012-2013 at governmental secondary school in Gaziantep. %52.5 (400 students) of these participants are female and %47.5 (362 students) are male. %24.3 (185 students) attend 5th, % 24.2 (184 students) attend 6th, %26.2 (200 students) attend 7th and %25.3 (193 students) attend 8th grade. For the test-retest test reliability of the Academic self-regulation scale, participants consist of 81 students chosen among these students.

2.2. The Properties of Academic Self-Regulation Scale

Academic self-regulation scale developed by Ryan and Connel (1989) aims at explaining why primary and secondary school students do their schoolworks. On this purpose, the scale consists of 4 factors. These factors are; "why do I do my homework?", "Why do I work on my classwork?", "Why do I try to answer hard questions in class?", "Why do I try to do well in school?" In each factor 8 answers are given. Students are given four choices as "very true", "sort of true", "not very true", "not at all true" to find the answer fitting them best. And they are asked to mark one.

While evaluating the survey, 4 points are given for very true, 3 for sort of true, 2 for not very true, 1 for not at all true. A higher score obtained from the scale indicates that the regulation style is endorsed at a higher level. Academic Self-Regulation Scale is designed to determine 4 regulation styles. These are external regulation, introject regulation, identified regulation and intrinsic motivaiton. Although integrated regulation is the most self-determined form of extrinsic motivation, it cannot be determined by this scale because of the fact that this kind of regulation is basically observed among adults (Liu et al.,2008). The answers in the scale are matched as among according to their regulation style. External regulation: 2, 6, 9, 14, 20, 24, 25, 28, 32; introjected regulation: 1, 4, 10, 12, 17, 18, 26, 29, 31; identified regulation: 5, 8, 11, 16, 21, 23, 30; intrinsic motivaiton: 3, 7, 13, 15, 19, 22, 27

To determine the style of regulation, it is calculated the subscale score for each of the four subscales by averaging the items that make up that subscale. In other words, the average of the points given for the items forming each regulation is taken. RelativeAutonomy Index-RAI is calculated using those points.To calculate the Relative Autonomy Index-RAI, this formula is used: 2 X Intrinsic + Identified – Introjected 2X Extrinsic. This index determines the autonomy level of behavior. Higher positive index on the self-determination continuum is related to more autonomous orientation (identified, integrated and intrinsic), higher negative index is related to more controlled orientations (intorjected, external).

2.3. Procedure

In order to adapt Academic Self-Regulation Questionnaire to Turkish, permission was asked from www.selfdeterminationtheory.org via email communication.After permission, the Questionnaire was translated into Turkish from its original Language, English. The translation of the Questionnaire was made by two experts who work as an instructor at Foreign Language High School of Gaziantep University.Then, these translations were collected and their common grounds were searched, receiving the opinions of the translators about the expressions that showed differences, co-decision was made. The Turkish form, prepared by consulting an Assistant Professor who is an expert in both educational sciences and in English, was translated into English again by an instructor whose native language is English, and who knows Turkish in advanced level. The original form of the questionnaire was compared with the English translation version by a linguist; the corrections were made, where necessary, by negotiating the translator.While language adaptation was being made, a word for word translation was avoided; the specialities of Turkish, the cultural and locational differences and the specialities of the students answering the questionnaire were taken into consideration (Mertens,1998).In order to determine whether the English and Turkish form of the questionnaire have the same meaning for the students, first the Turkish form and three weeks later the English form of the scale was applied to the 50 students who studied at Foreign Language High School of Gaziantep University and knew English well.

The correlation between English and Turkish form of the questionnaire for linguistic equivalency was determined by Pearson Correlation analysis. After providing linguistic equivalency, the datum obtained from the Turkish form applied to the secondary school (5th, 6th, 7th and 8th grade) was uploaded to the software of SPSS 20.0 and exploratory factor analysis was performed for the construct validity of the questionnaire.

3. Result

3.1. Linguistic Equivalency

To determine the linguistic equivalency, Pearson Correlation Coefficient between Turkish and English form were calculated by implementing correlation analysis. If the Pearson Correlation Coefficient between two variables is 0.00-0.25, it is commented as very weak; if 0.26-0.49, weak; if 0.50-0.69, medium; if 0.70-0.89, high and if 0.90-1.00, very high (Kalaycı, 2006, p.116).As the result of the correlation analysis, a highly positive and significant relation was found between the English and Turkish form of the questionnaire (r= 0.86, p < 0.01).

A highly positive and significant relation was found between the English and Turkish form of the questionnaire for the sub-dimensions of the questionnaire extrinsic regulation (r= 0.75, p< 0.01), introjected regulation(r= 0.73, p<0.01), identified regulation (r=0.78, p<0.01) and intrinsic motivation (r=0.73, p<0.01). When correlation coefficients are analysed, it can be said that the English and Turkish form of ASRQ have linguistic equivalency.

3.2. The Findings and Comments on Exploratory Factor Analysis

To determine the factor structure of ASRQ, exploratory factor analysis was performed on the datum collected from 762 students. Exploratory factor analysis is a statistical method explaining scale by fewer factors and by gathering the variances which measure the same structure and characteristics (Büyüköztürk, 2005, p.122). Whether the data are appropriate for the factor analysis or not is determined by Kaiser-Meyer-Olkin (KMO) test and BarlettSphericity test.Kaiser-Meyer-Olkin (KMO) tests the relevancy of the data set in terms of the greatness of the examples, and BarlettSphericity tests whether the data are distributed in the universe normally, or not (Çokluk et al.,2012, p.208). That KMO ratio is higher than 0.70 and Barlett test is significant at 0.01 levels shows that the datum is appropriate for factor analysis (Leech at al., 2005, p.95). In the tests performed, the KMO ratio for ASRQ was found 0.87, the result of the Barlett test was found as ($\chi2= 6972.767$, p< 0.001) significance. These values show that the data are convenient for factor analysis.When the first factor analysis on the datum obtained from ASRQ was examined, it was determined that the items of the scale were divided into 8 factors of which eigenvalues were greater than 1. The contribution of this structure with 8 factors to variance is % 55.605. The scree plot of these factors is given as below.
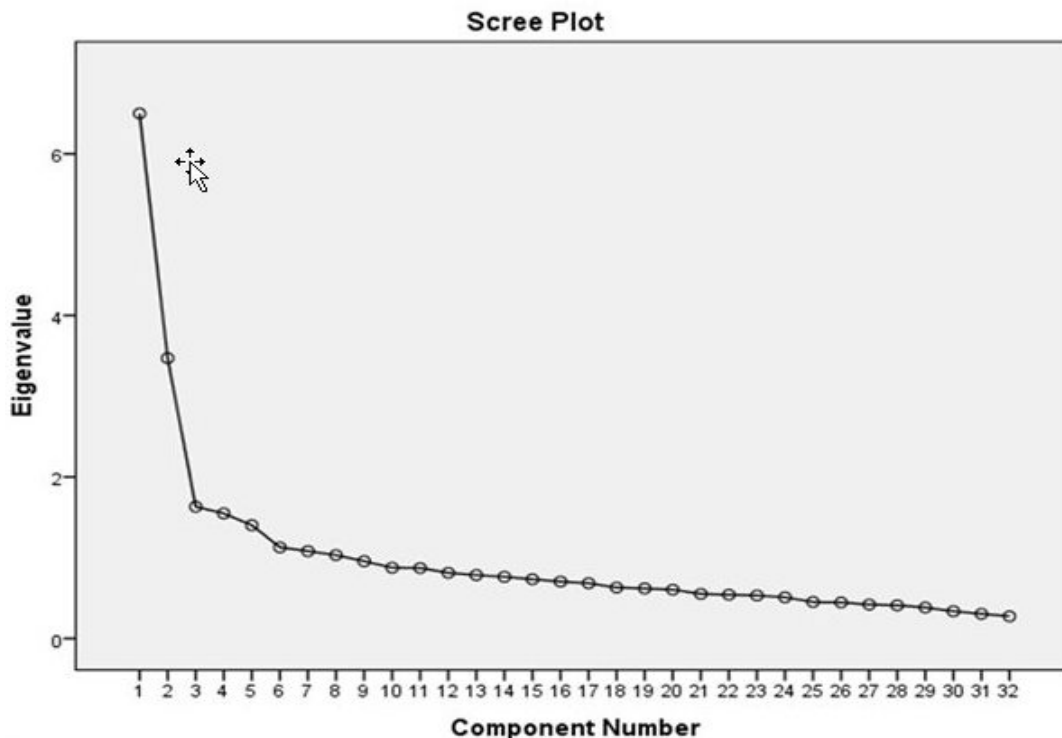

Figure 2: The Scree Plot Graphic of Academic Self-Regulation Scale

In the analysis of the scree plot graphic given in Figure 2, it can be said that the scale basically has a four factor structure. Because of the fact that the contribution of the components following fifth point to the variance is small and close to each other, also that the original scale consists of four factors; the scale was decided to be comprised of four factors. After this decision, factor analysis was repeated on four factors. In factor analysis, rotation is performed in order for factors to be independence, relevance in interpretation and clarity (Büyüköztürk, 2005).

As a result of Varimax rotation, the 15 items (3, 4, 7, 9, 12, 13, 14, 15, 18, 23, 24, 25, 29, 31, 32) which do not accord with the structure determined by Self Determination Theory and give loading value to more than one factor and of which loading value is below 0.32   are subtracted from the scale. The factor design obtained as a result of the subtraction of these items from the analysis, the loading value and total item correlations are given in Table 1.

Table 1: The Factor Design, Loading values and Total Item Correlations of the Academic Self-Regulation Scale

Items	Introjected Regulation	Identified Regulation	Intrinsic Motivation	External Regulation	Total ItemsCorrelation
10	**,813**	,103	-,020	,134	,45
26	**,771**	,025	,035	,139	,42
1	**,769**	,046	,028	,167	,44
17	**,685**	-,059	,194	,052	,37
8	,048	**,655**	,149	-,079	,29
11	-,040	**,649**	-,039	,106	,25
16	,098	**,629**	,238	-,069	,34
5	-,043	**,578**	,078	,052	,24
21	-,004	**,479**	,284	,165	,34
30	,173	**,477**	,328	,204	,47
22	,068	,148	**,818**	,022	,40
19	-,011	,173	**,809**	,037	,37
27	,160	,236	**,612**	,165	,46
28	-,007	-,038	,147	**,707**	,27
2	,223	-,137	,122	**,642**	,31
6	,172	,211	-,051	**,614**	,35
20	,193	,351	,023	**,551**	,43

As seen in Table 1, the first factor relating to introjected regulation consists of four items (1, 10, 17, and 26).The loading value of these items changes between 0.685 and 0.813; total item correlation does between 0.37 and 0.45 and this factor explains % 22.73 of the total variance. The second factor relating to identified regulation consists of six items (5, 8, 11, 16, 21, and 30). The loading value of these items changes between 0.477 and 0.655; total item correlation does between 0.24 and 0.47 and this factor explains % 13.61 of total variance. The third factor relating to intrinsic motivation consists of three items (19, 22, and 27). The loading value of these items changes between 0.612 and 0.818; total item correlation does between 0.37 and 0.46 and this factor explains % 7.55 of the total variance. The fourth factor relating to external regulation consists of four items (2, 6, 20, and 28). The loading value of this factor changes between 0.551 and 0.707; total item correlation does between 0.27 and 0.43 and this factor explains %7.20 of the total variance.

As seen in Table 1 the contribution of the four factor structure to the total variance is %22.73 for the first factor, %13.61 for the second factor, %7.55 for the third factor and % 7.20 for the fourth factor. The contribution of these four factors to the variance is %51.11. According to Çokluk et al. (2012, p.245) it is enough that the variance explained in multi-factor designs is between %40 and %60. Accordingly, in this study, the total contribution of four factors to the variance is enough.

The Pearson Correlation Coefficient was calculated to determine how much independent are the factors among the factors forming ASRQ and their relation with scale. The Pearson Correlation Coefficients of the scale is given in Table 2.

Table 2: The Correlations between Academic Self-Regulation Scale and its Factors

	External	Introjected	Identified	Intrinsic
External	1,00	,37**	,25**	,22**
Introjected		1,00	,14**	,17**
Identified			1,00	,46**
Intrinsic				1,00
Academic self-regulation	,68**	,70**	,59**	,69**p<0.01As

seen in Table 2, the correlation coefficient between the sub-factors and Academic Self Regulation changes between 0.59 and 0.70 and it can be seen that they are significant at 0.001 levels. Accordingly, it can be seen that there is a moderate relation between Academic Self Regulation and external regulation, identified regulation and intrinsic motivation; a high level relation between introjected regulation. These results indicate that these four sub-factors are the sub-factors of ASRQ. When the correlation coefficient of the sub-factorsforming thescale among each other are analyzed, it is seen that there is a weak relation between external and introjected regulation (r=0.38); weak relation between external and identified (r=0.22); very weak between external and internal (r=0.18); very weak between introjected and identified (r=0.14); very weak betweenintrojectedand internal (r=0.17); weak between identified and internal (r=0.47).That Pearson Correlation Coefficient is high indicated that the factors are dependent; that it is low indicate that they are independent (Özgüven,1992).Accordingly, it can be said that the sub-factors forming the scale are independent from each other.

3.3. The Findings and Comments on Confirmatory Factor Analysis

Confirmatory factor analysis was performed in order to determine whether 17 item four factor structure forming Turkish version was confirmed or not. Most often used statistics while testing the confirmatory factor data analysis and model unity are ($\chi 2$), RMSEA, RMR, CFI, GFI and AGFI (Duyan & Gelbal, 2008).

The statistics showing the model- data fit of Academic Self Regulation Scale is given in the table below

Table 3: The Results of Academic Self-Regulation Scale Related to Unity Tests

$\chi2$	P	Df	$\chi2/df$	CFI	NFI	GFI	AGFI	SRMR	RMSEA
257,06	p<0.01	111	2.32	.97	.94	.96	.95	.044	.042

As seen in Table 3, p value of chi-square ($\chi2$) is significant at 0.01 levels. Here, it is expected that the p value is not significant; but it is normal that p value is significant because the samples on which confirmatory factor analysis are performed are great (Çokluk et al., 2012, p.307). In that case, another fit indices taken into consideration is the value found when chi-square is divided into degree of freedom ($\chi2$**/**df). With great samples; if $\chi2/d$ value is below 3, it means perfect; if it is less than 5, it means moderate fit (Sümer, 2000; Kline, 2005, p.204).Under the circumstances, $\chi2/df$ value has the perfect fit.With this proportion, standardized RMR (SRMR) and RMSEA below 0.05 corresponds to perfect fit; below 0.08 does good fit(Brown,2006, p.87).As seen in Table 3 Standard RMR (SRMR) and RMSEA value corresponds to the perfect fit.Apart from them, to verify the identified structure CFI, NFI, GFI and AGFI unity indexes should be evaluated. If these indices are equal or more than 0.90, it corresponds to good fit; if they are equal or more than 0.95, it corresponds to perfect fit(Sümer, 2000; Thompson,2004, p.129-130). As seen in Table 3, CFI, GFI and AGFI have the perfect fit, NFI has the good fit.

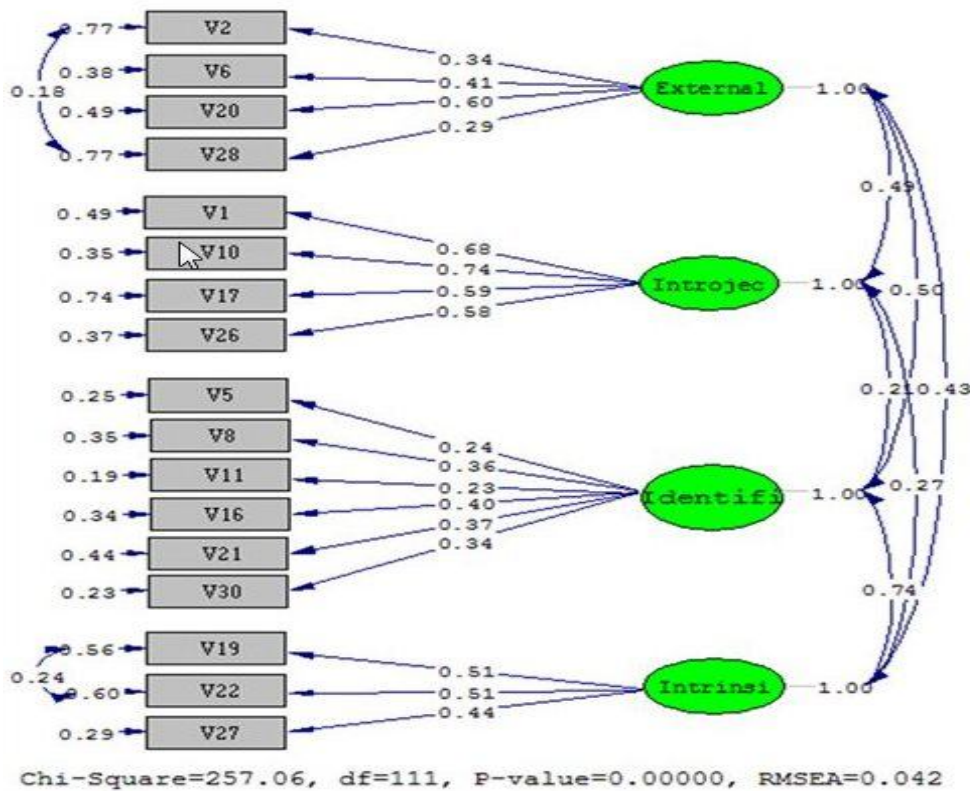The confirmatory factor analysis diagram of AcademicSelf Regulation Scale is given as below.

Figure 3: The Confirmatory Factor Analysis Diagram of Academic Self Regulation Scale

When the values given in Table 3 and Figure 3 are evaluated together, it can be said that four factors 17 items structure is confirmed.

3.4. Findings and Comments on Test-Retest Method

In order to find out reliability using the test-retest method, ASRQ was applied to 81students everyfour-week intervals. Later, Pearson correlation coefficient, which constitutes the new measure among 17 items, was calculated. As a result of the correlation analysis that was performed, amid the implementation of the measure every four – week intervals there was found a high level, positive and significant relevance (r= 0.85, p< 0.01).The correlation coefficient among the lower dimensions of the scale was found 0.63 (p< 0.01) for external regulation, 0.73 (p< 0.01) for introjected regulation, 0.71 (p< 0.01) for identified regulation and0.71 (p< 0.01) for intrinsic motivation. These results indicate that introjected, identified and intrinsic motivation is high level interrelated; external regulation is mid – level interrelated.3.5. FindingsandComments on Cronbach's Alpha MethodThe Cronbach's Alpha method was implemented for 17 items using the data collected from 762 students.This method searches, whether the items that constitute ASRQ represent a whole that has

homogeneous features or not (Kalaycı, 2006, p.405).If the alpha coefficient is between 0.00 -0.40 the measure is not reliable, if it is between 0.40 – 0.60 the reliability is low, if it is between 0.60 – 0.80 the measure is reasonably reliable and if it is between 0.80 – 1.00 the reliability level of the measure is high. As a result of the analysis performed, the alpha coefficient of the measure was calculated as 0.78. This outcome indicates that the measure is reasonably reliable. The alpha coefficients of the substructure that constitute the scale are 0.58 for external regulation, 0.78 for introjected regulation, 0.67 for identified regulation and calculated as 0.71 for intrinsic motivation. These results indicate that introjected, identified regulation and intrinsic motivation are reasonably reliable, but external regulation has low level reliability.

Although the level of reliability is low in this group of substructure, this result can be used for contrasting the average point differences among the groups (Öncü,2012).

4. Discussion

The purpose of this study to develop the Turkish version of ASRQ which was developed by Ryan and Connell (1989) for secondary school students. As a result of two applications that were madefor linguistic equivalence every three weeks, a high level, positive and significant ($r = 0.86$, $p < 0.01$) correlation was found between the English and Turkish form of the scale. This result indicates that the items that constitute both the English and Turkish form of the scale have the same meaning for the students. The Turkish form of the scale was applied to a total of 762 grades 5, 6, 7 and 8 (11 – 14 age) students.

As a result of the explanatory factor analysis performed to identify the structure validity of the scale, the structure of the scale was identified to be constituted by four factors and 17 items. The loading values of these items changed between 0.447 and 0.818; the total correlations of the item changed between 0.24 and 0.47. The total contribution of the four – factor structure made to the variance was % 51.11.In social sciences, between %40 - %60 of variance explained in multi – factor structure is found sufficient for structure validity (Çokluk et al., 2012, p. 245). The structure that was identified by explanatory factor analysis was confirmed by confirmatory factor analysis (X2/df<3, RMSEA ve SRMR <.05, CFI, GFI and AGFI > .95). The Pearson correlation coefficient of the test – retest of the scale was calculated as 0.85, Cronbach's alpha was calculated as 0.78. Under the circumstances, it can be said that the form of ASRQ that was adapted to Turkish is valid and reliable.

A study like this was carried out by Hanfstingl et al. (2007). Hanfstingl et al. (2007) tried to adapt Academic Self - Regulation Scale to German. For this purpose, Hanfstingl et al. (2007) not only took some items from ASRQ, but also added some new items to the scale. Consequently, they developed the German version of ASRQ that was constituted by 17 items and 4 factors. The reliability of the scale that they developed changed between 0.75 and 0.92 depending on the sub-factors.In this study, the reliability of sub-factors (external, introjected, identified and intrinsic) was found between 0.58 and 0.78. The reason why the German version is more reliable might be originated from the new items that were added to it.

5. Conclusion and Recommendation

As a result, it can be said that the Turkish version of Academic Self Regulation Scale developed by Deci and Ryan (1989) is valid and reliable. This scale can be used by teachers, psychologists and academicians in order to determine how the self regulation style (extrinsic, introjected, identified and intrinsic) of the student between 11-14 according to different variables (self efficacy, academic achievement, learning style etc.).

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